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No. 25

Damage by Alfalfa Aphid Below Normal

Pest Not as Numerous
As in Previous Years

More Insect Notes on Page 4—

WASHINGTON — "Comparatively small" numbers of spotted alfalfa aphids were active through May, the U.S. Department of Agriculture, reported last week.

By June 1 the pest had not reached the damaging proportions that it had by the same date in previous years since its discovery in the U.S. in 1954.

In the Southwest, where the aphid was first found, southern New Mexico had light to heavy infestations this year.

Utah reported damaging populations in late May, according to USDA's Agricultural Research Service cooperative economic insect reports. Insecticidal treatment was necessary in Nye County, Nevada. Nebraska's first spotted alfalfa aphid of the year was taken May 23.

The aphid first crossed the Mississippi River eastward last year. Up to early June, 1957, aphid numbers in the eastern states were generally light. Some honeydew, which the aphids secrete on alfalfa, was reported from areas of North Carolina.

PPFI Asks Potash

Firms to Accept
Dues Pending Study

WASHINGTON — John A. Miller, vice president of the National Plant Food Institute, June 20 issued a statement asking that six potash producers accept, for the 1957-58 fiscal year of the Institute, the new higher dues structure adopted to finance an expanded Institute program.

Meanwhile, according to Mr. Miller's statement, a committee appointed by the Institute's executive committee, would study the dues situation for all members to see if any inequities exist.

The new Institute program, along with higher dues to finance it, was adopted at the Institute's annual meeting at the Greenbrier Hotel, White Sulphur Springs, W. Va., June 17. (See page 1 of the June 17 issue of Croplife.)

Before the membership vote on the program, the six potash producers had threatened to resign from the Institute if the program was approved.

The six potash firms are Potash Chemical Co., American Potash & Chemical Corp., Duval Sulphur Potash Co., National Potash Co., Southwest Potash Corp. and U.S. Potash Co., division of U.S. Borax & Chemical Corp.

All are members of the American Potash Institute.

Fertilizer and Plant Nutrient Tonnages Decline in 1955-56

Fertilizer Use by Regions, Year Ended June 30, 1956*, in Tons

Region—	Mixtures			Materials†			Grand total
	July 1- Dec. 31, 1955	Jan. 1- June 30, 1956	Total	July 1- Dec. 31, 1955	Jan. 1- June 30, 1956	Total	
New England	32,981	314,589	347,570	22,263	46,424	68,687	416,257
Middle Atlantic	421,887	1,317,997	1,739,884	64,681	138,432	203,113	1,942,997
South Atlantic	1,125,146	3,714,349	4,839,495	209,397	904,515	1,113,912	5,953,407
East North Central ...	906,861	2,472,988	3,379,849	431,039	703,956	1,134,995	4,514,844
West North Central ...	368,293	813,504	1,181,797	346,457	536,071	882,528	2,064,325
East South Central ...	296,339	1,684,362	1,980,701	302,713	616,976	919,689	2,900,390
West South Central ...	182,076	521,013	703,089	205,024	460,698	665,722	1,368,811
Mountain	9,302	38,574	47,876	97,576	234,284	331,860	379,736
Pacific	95,953	212,945	308,898	769,049	1,175,438	1,944,487	2,253,385
Territories	107,075	139,419	246,494	60,439	91,985	152,424	398,918
Continental U.S. ...	3,438,838	11,090,321	14,529,159	2,448,199	4,816,794	7,264,993	21,794,152
Total 1955-56	3,545,913	11,229,740	14,775,653	2,508,638	4,908,779	7,417,417	22,193,070

*Includes: Ground phosphate rock, basic slag, secondary and trace nutrient materials, such as, borax, sulfur, magnesium sulfate, etc., used as separate materials, also fertilizers distributed by government agencies. Does not include liming materials, but includes gypsum. †Does not include the quantities of materials used for manufacture of commercial mixtures.

INVESTIGATING COMMITTEE REPORTS

Instrument Failure Leads to April Blast At Monsanto Chemical Co. Nitro Plant

ST. LOUIS—Instrument failure led to the April 16 explosion at Monsanto Chemical Co.'s Nitro, W.Va., plant (page 1, April 22 Croplife) which took the lives of eight workers and destroyed a methyl parathion production unit there, according to investigating committee findings reported by the company.

Howard L. Minckler, director of manufacturing for the organic chemicals division which operates the plant, said that the committee report substantiated earlier assumptions that the explosion occurred in a reactor vessel during a chlorination step. Chlorination is common in chemical processing, he said, but characteristically builds up heat which requires cooling of the chlorinator.

A falsely low temperature reading on the vessel from the faulty instrument apparently led operators to shut off the coolant supply, a brine line cooled by ammonia coils.

An examination of the scene indicated, Mr. Minckler said, that the coolant was turned off to permit work on the instrument, under repair at the time of the explosion.

Detailed technical information on the explosion's cause as determined

by the investigation has been supplied to other producers of methyl parathion along with information on the steps Monsanto has taken to prevent a recurrence, Mr. Minckler said.

Additional process research which has been carried out on methyl parathion by Monsanto since the explosion has reconfirmed the fact that the product can be manufactured with a substantial safety factor under the company's process, Mr. Minckler added.

The company announced last month that new plant facilities for methyl parathion are under construction at its Anniston, Ala., plant to supplant output of the destroyed unit at Nitro. Completion is scheduled for late fall.

Monsanto said that the decision to move the production from Nitro to Anniston was dictated by the availability there of chlorine and caustic raw materials, formerly freighted to Nitro, and a much closer proximity to the citrus and cotton growers who are major customers for methyl parathion.

April Inorganic Output Below March Totals

WASHINGTON—April production of synthetic anhydrous ammonia totaled 319,825 short tons, down slightly from the March output of 320,733 tons, the U.S. Department of Commerce has reported. Output of ammonium nitrate, original solution (100% NH_4NO_3) in April amounted to 203,539 tons, down 10% from March production of 226,719 tons.

Also down were production of nitric acid (100% HNO_3) and phosphoric acid (50% H_3PO_4). April output of nitric was 242,261 tons, down 3% from March output of 250,040 tons, while April production of phosphoric totaled 356,352 tons, off 6% from March output of 380,992 tons.

WASHINGTON — Fertilizer consumption in the U.S. and territories for the 1955-56 fiscal year showed decreases in both the over-all tonnage figures and in the amounts of primary nutrients used, according to the annual consumption report just issued by the U.S. Department of Agriculture.

Consumption of fertilizers during the fiscal year ended June 30, 1956, was 22,193,070 tons, which was 533,392 tons less than the total of the previous year. The report was compiled by Walter Scholl, Hilda M. Wallace, Esther I. Fox and Florence B. Crammatte of the Fertilizer and Agricultural Lime Section, Soil and Water Conservation Research Division, Agricultural Research Service, USDA.

Only one region of the U.S. showed a gain in the consumption of mixed fertilizers. The Pacific region, comprising California, Oregon and Washington, used 11,259 tons more than in the previous year. Several regions, however, registered gains in the consumption of materials, including secondary and trace nutrients.

The largest gain in this category was registered by the East North

(Continued on page 8)

Stauffer Chemical Proves Out Large Phosphate Ore Body

MONTPELIER, IDAHO—Exploration work at Stauffer Chemical Co.'s phosphate rock property at Hot Springs, Idaho, indicates a multi-million ton ore body, Stauffer said recently.

The underground development work has been conducted by San Francisco Chemical Co. for Stauffer. Results of three years of the work have established that the Stauffer reserves include "at least a million tons of easily minable, high grade phosphate rock which can be used for the economic manufacture of superphosphates," Stauffer said.

In addition, many times that tonnage of high grade rock is indicated, and a vast quantity of lower grade phosphate shales has been proved out, according to the firm. The shales could be used as raw material for the electric furnace production of elemental phosphorus or might be beneficiated.

The company said it does not plan immediate exploitation of this ore because it already has substantial reserves of phosphate rock in other properties it owns, or has interests through affiliated companies, in Wyoming, Idaho and Utah.

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Drouth Threatens Serious Crop Damage In Massachusetts

BOSTON—The worst spring drouth in a decade has hit Massachusetts and state agricultural officials have warned that serious crop damages may result from the current dry spell. At the same time, the Massachusetts water resources commission said that the statewide rainfall deficit as of June 15 amounted to 5.69 inches since the beginning of the year.

L. Roy Hawes, Massachusetts commissioner of agriculture, said dairy farmers and strawberry growers might be in for real trouble unless a soaking rain falls soon. Walter Piper, state marketing specialist, said market gardeners need an inch of rain a week.

Cape Cod, with a rainfall of only 1.3 inches since the end of April, is hardest hit. The Cape did not enjoy the nearly two-inch rainfall that end-

ed the May forest fire menace. Virtually the same extreme dry conditions exist in Plymouth and Bristol counties as well as in Cape Cod's Barnstable County.

Throughout Massachusetts there is increasing concern about pastures burned and crops suffering from only .42 of an inch of rain in the first 15 days of June. Total for the month normally is 3.48 inches.

Bertram Tomlinson, manager of the Barnstable County extension service, reported that the dry spell in southeastern Massachusetts was hurting especially dairy farmers whose pastures have grown thin at a time when they look forward to lush crops.

Not only will the harvest be lighter, he said, but there is considerable apprehension that in some instances the hay might not contain its full content of essential vitamins. Mr. Tomlinson also reported that the Falmouth strawberry crop, now being harvested, was the concern of many growers.

Large market gardeners are surviving because of their irrigation systems, he added, but home gardeners are standing by helplessly while crops are wilting.

The state hay crop has been affected the most seriously by the lack of rain. The hay has come along faster than usual and will dry up in the fields unless harvested immediately, agriculture department officials warned.

RUTGERS APPOINTMENT

NEW BRUNSWICK, N.J.—Dr. William O. Drinkwater, assistant professor in the horticultural department at Rutgers University, will become acting chairman of the vegetable crops group on July 1, according to Dr. William H. Martin, dean and director of the College of Agriculture and Experiment Station. He will succeed Prof. Lyman G. Schermerhorn, whose retirement takes effect on the same date.

North Carolina Adopts New Grade List for 1957-58

RALEIGH, N.C.—The North Carolina State Department of Agriculture has adopted a new fertilizer grade for the 1957-58 fiscal year which contains only a few changes from current list.

One grade for tobacco only, 3-9-9 was discontinued. Another grade, 9-9-9 was dropped for general crops retained for tobacco. Two new grades of high analysis goods, 0-30-30 and 0-20-40, were added.

The approved grades for the year starting July 1 are shown below. In addition, each manufacturer must register and sell one specialty grade. For tobacco: 2-10-8, 3-9-9, 4-8-6-12-15, 8-8-8, 4-93-3 (for plant bed), 6-12-4 (for plant beds), 8-0-24 (dresser).

For general crops: 0-9-27, 0-10-14-14, 0-20-20, 0-20-40, 0-30-30, 12-12, 3-9-18, 4-8-12, 4-12-12, 5-10-6-6-12, 6-8-6, 6-12-6, 8-8-8, 10-10-10-20-10, 10-20-20, 13-13-13, 14-14-14-0-14 (top dresser), 20-0-20 (dresser).

New Oregon Laws Affect Herbicides

PORTLAND, ORE.—The Oregon Department of Agriculture has been given new authority for the control of weed killers by a law passed in the recent legislature. In event alleged damage from weed killers, the department is authorized under the new law to investigate, examine and determine the extent of the damage.

A second law, effective June 1958, amends the legislation on creation and operation of chemical control districts to give all legal vote in a district a voice in the hearing, referendum and organization of district. However, only landowners are still entitled to petition for such areas.

The measure also provides that levies in any protected area will be on all property taxable for state county purposes, rather than on real property only. This amendment was introduced at the request of the State Tax Commission.

Minnesota Soils Tour Arranged for July

ST. PAUL, MINN.—Members of the Minnesota Middle West Soil Improvement Committee will view pasture fertilizer demonstrations in northeast Minnesota on July 2. The demonstrations conducted on permanent grass pasture are a cooperative project in soils, farm management, dairying and crops, according to the demonstration leaders, Charles Simkins and Ermond Hartman, University of Minnesota extension specialists who will conduct the tour.

At the Grand Rapids Station visitors will see pastures composed largely of bluegrass which will receive 300 lb. nitrogen an acre during the growing season. Yields of these pastures are being calculated in pounds of milk per acre. Visitors will also see heavily fertilized grasses being utilized for silage. Here again rate of nitrogen up to 300 lb. an acre is being employed.

The group will spend the afternoon in Carlton County where they will visit farmers utilizing pasture from heavy fertilized bluegrass. The farms represent a part of the demonstration program on permanent pasture being conducted by the University of Minnesota extension service.

SOIL TESTS

GENEVA, ALA.—More than 80 soil tests have been made in Geneva County, Ala., according to M. Woodham, county agent. He said check of 14 of the corn land samples showed that 11 pointed up a need for lime.

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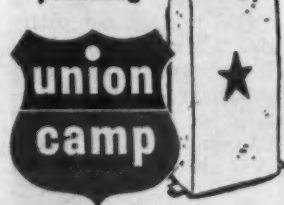
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INSECT AND PLANT DISEASE NOTES

Cotton Leafworms Reported in Texas

COLLEGE STATION, TEXAS (Via Western Union June 18)—The first confirmed reports of cotton leafworms (*Alabama argillacea* [HBN]) were received by the state entomologist's office. The leafworms were reported to be in Frio, Cameron, and Calhoun counties. Earlier reports of leafworm were made on June 10, but not confirmed, according to H. A. Turney, assistant extension entomologist.

Spotted Alfalfa Aphids Move Into South Dakota

BROOKINGS, S.D.—Spotted alfalfa aphids, first observed by William Hantsbarger, survey entomologist at South Dakota State College about May 23, have now been found in Union, Clay, Yankton, Bon Homme, Charles Mix, Hutchinson, Turner, Lincoln and Minnehaha counties.

"No heavy infestations have been noted and little damage is likely to occur to the first hay crop," say the entomologists. However, farmers were advised to check the regrowth of their fields for possible aphid injury. "Things to look for include colonies of yellowish aphids or plant lice on the leaves and accumulations of sticky honeydew secreted by the insects," they were told.

Missouri Farmers Get Corn Borer Warning

COLUMBIA, MO.—In those counties bordering the Missouri River and north, early fields of corn should be checked for European corn borer. Damage will be concentrated in the earliest fields since the borers lay primarily in corn which measures 36 in. or more in extended height.

There is an unusually heavy population of leaf hoppers now showing up. Greatest damage seems to be to alfalfa, and to beans and potatoes in the garden. The potato leaf hopper is causing most of the trouble. Leaf hopper damage to alfalfa shows up first as yellowing, somewhat wedge shaped, at the tips of the leaves. As damage increases, the yellow spreads and includes the entire leaf.

Blister beetles are beginning to cause trouble in some alfalfa and soybeans.—Stirling Kyd.

Grasshoppers Expected in California Areas

SACRAMENTO, CAL.—Tehama County, California, is marshalling its forces to combat a threatened invasion of grasshoppers which in some localities number 1,000 young 'hoppers per square yard.

Steven T. Ancell, county agricultural commissioner, has obtained support of the board of supervisors to appropriate more funds in supplementation of the \$6,000 already spent for control purposes this year.

Mr. Ancell reported the infestation is greatest south of Corning, in the Hunter District, the Pine Creek District near Vina and in the Antelope-Dry Creek area.

Large amounts of bait already have been spread but Mr. Ancell said his office does not have the means to meet all county requirements.

Texas Rains Make Good Setup for Insect Pests

LAMESA, TEXAS—The heavy rains throughout the area will cause one of the biggest insect infestations in history, say several West Texas county agricultural agents.

Gerald Hanson of Martin County has been warning farmers to check their cotton fields as soon as the plants emerge for thrip, aphids

and fleahoppers, as these insects usually attack cotton plants in the four-leaf stage.

Don Fields, county agent of Dawson County, says that during wet years like this one, the insects will often start working on cotton as soon as the plants are up.

Mr. Fields says that experiments at the Lubbock Experiment Station have proved that early season control will often save cotton farmers a quarter of a bale an acre.

Kansas Counts Many Grasshoppers in Fields

MANHATTAN, KANSAS—(June 15)—Most of the grasshopper hatch is now complete in the state. Counts along fence rows have been as high as 60 per square yard in eastern Kan-

sas counties. A check of the range grasshopper control area in South West Kansas shows ten times as many grasshoppers in unsprayed areas as can be found where range was sprayed with airplanes last year. The grasshoppers still do not have wings so field margin sprays could eliminate the grasshoppers.

English grain aphids can still be found in some western and northern counties in the heads of wheat. These aphids are destroyed very rapidly by the natural insect controls. As to spotted alfalfa aphids and pea aphids, no problems can be found in the alfalfa growth for the second cutting.—David L. Matthew and Dell E. Gates.

Weather Helps Control of Corn Borer in Illinois

URBANA, ILL.—(June 13)—Wind and rain storms of this past week undoubtedly killed corn borer moths and helped to reduce the total number of eggs to be deposited. However, few borers survive from the first 50%

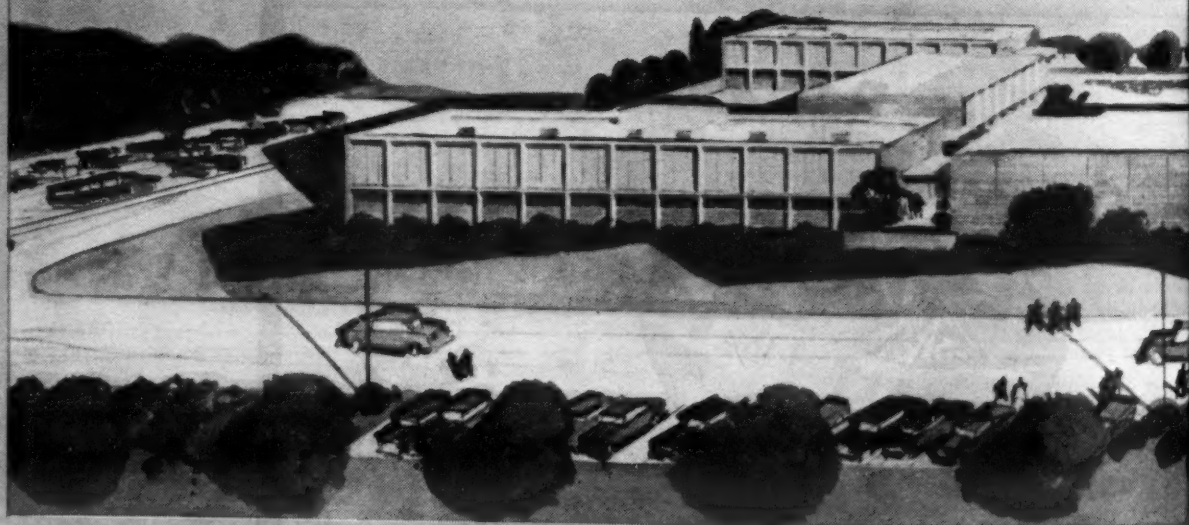
of the eggs that hatch. Weather during the next 10 days will be very important to corn borer survival. Continued storms could reduce the moth population and subsequent egg-laying drastically, while calm weather would benefit the borer.

In southern Illinois, moth emergence is complete and egg-laying is almost over. Except in isolated instances, populations will be quite low on field corn.

In central Illinois, pupation is complete and emergence reached 50% this past week. Emergence was expected to be complete by June 20, and egg-laying should be complete within a week to 10 days after that. Eggs are now being deposited on exceptionally advanced fields.

In northern Illinois, pupation is practically complete, but only about 20 to 30% of the moths have emerged. A few eggs were deposited this past week. Egg-laying will probably con-

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Artist's conception of Shell Development Company's expanded new Agricultural Research Center at Modesto, Calif.

To STRIKE more powerful blows against agriculture's worst enemy, crop-destroying insects, Shell Development Company is consolidating and expanding its research facilities at Modesto, California.

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laboratories in the world. A staff of more than 100 will explore every aspect of pesticide research. The new laboratories will be composed of three specialized divisions: Biological Research, Chemical Research, and Product Application.

The research facilities also include a well-established 142-acre experimental farm on which major economic

continue until July 4 or later. Optimum time for treatment will probably be the first week of July.

A few spotted alfalfa aphids were collected on alfalfa in western Illinois this past week. Careful observations will be made from now through the season. At present, however, numbers are so low that there is no cause for alarm or reason for treatment at this time.—H. B. Petty.

Cotton Pests Worry Arizona Growers

PHOENIX, ARIZ.—(June 14)—Cotton is now making excellent growth in all parts of the state and in many areas the injury by insects is down considerably. However, in Yuma County as well as some other areas of the state, fields that were planted early and where thrips were controlled are showing injurious infestations of Lygus and a few bollworms.

In Pinal County Lygus are on the increase in Maricopa, Florence, Cool-

idge, and Eloy areas. The counts range from 2 to 12 per 100 strokes of the insect net. The counts look as if a buildup is near; however, predators are very numerous in the Maricopa area. In one area, near Maricopa, cotton leaf perforators showed an average of 6 per 100 sweeps. The black fleahopper counts are also as high as 16 per 100 sweeps. Thrips are still present in some fields as well as loopers and fleahoppers. Damaged squares are very prevalent in almost all fields.

In Graham County cotton plants are now starting to square and a few growers are still spraying for thrips. In Yuma County, Lygus counts ranged around 20 to 25 per 100 sweeps with the same number of injured squares present in some fields.

Most cotton in Maricopa County contains some injurious insects. However, in many cases the populations are not at the point where insecticide

applications are justified. In many of these fields predators are very numerous. There are scattered infestations of spider mites in the Chandler, Glendale, Peoria and Buckeye areas that will need controls soon. A few cotton leaf perforators are also present around Buckeye and in the Chandler-Mesa areas. Cabbage loopers and beet armyworms are working.

With alfalfa harvest under way throughout the county, Lygus have begun to migrate into cotton. Fairly high populations of the beet fleahoppers have been observed around ditch banks. Thrips continue to injure cotton in many fields in Pima County. Some fleahoppers are also appearing.—J. N. Roney.

Corn Insects at Work in Numerous Maryland Areas

COLLEGE PARK, MD.—Potato leafhoppers were found on alfalfa from Montgomery County westward, 1 to 6 per sweep, including adults and nymphs. These populations may cause

injury next month. Recently hatched grasshoppers and adults of the lesser clover leaf weevil were found in newly cut red clover in Prince George's County. (June 14)

No serious trouble from insects in corn is evident at present. There is much evidence of thrips feeding on the older leaves where they make short, silvery streaks, but corn is outgrowing this. Flea beetles are still present. A few European corn borers, southern cornstalk borers, and corn earworms may be found in the whorls of corn in Eastern Shore fields, and there is minor feeding on outer leaves. Cutworms have caused light damage to field corn after sod in Queen Anne's County. Armyworms are still damaging corn on the Upper Shore.

Thrips are infesting soybeans on the Eastern Shore and causing silvery streaking of the leaves. Colorado potato beetles are still at work on tomatoes in Caroline County.

Tobacco planting is finished on most farms, and fields appear to be in good shape. Flea beetles are infesting the young plants in the field.—Theo. L. Bissell and W. C. Harding.

Grasshoppers and Corn Borers in Iowa Report

AMES, IOWA.—(June 15)—Emergence of European corn borer at Ankeny is 58% with 118 egg masses per 100 plants. At Ames emergence is 20%. There are 2.4 egg masses per 100 plants (random selection of 24 fields) in Boone County. First eggs appeared June 10.

Moth flights are unusually heavy, corn growth conditions are excellent, and every farmer should watch his early corn carefully.

Grasshoppers are hatching in extreme northern Iowa. Newly hatched lesser migratory hoppers average 1 per 10 square yards in alfalfa there. In Harrison, Monona and Woodbury counties populations range 10-20 per square yard. They run 75-80% lesser migratory, first instar-adult, 20-25% differential first to third instar.

Billbugs, especially the big clay-colored billbugs, are working in the Missouri bottoms from Harrison to Fremont County, feeding on the developing kernels of wheat and on young corn.—Harold Gunderson.

New England Weather Favors Insect Population

AMHERST, MASS.—A series of warm nights favored egg-laying by codling moths in the state, and damage by larvae has been noted in a number of orchards.

Two-spotted mites were expected to move into orchard trees during the week of June 17, and have been seen on raspberry bushes.

Rose chafers have emerged. They attack fruits as well as roses. Spittle bug has been reported as serious on strawberry plants.—C. J. Gilgut and O. C. Roberts.

Boll Weevils Threaten South Carolina Cotton

CLEMSON, S.C.—Reports of heavy emergence of overwinter boll weevils have been received by the Clemson Extension Cotton Committee.

Winter conditions during the early part of June have favored the increase of the weevils as well as thrips and flea beetles.

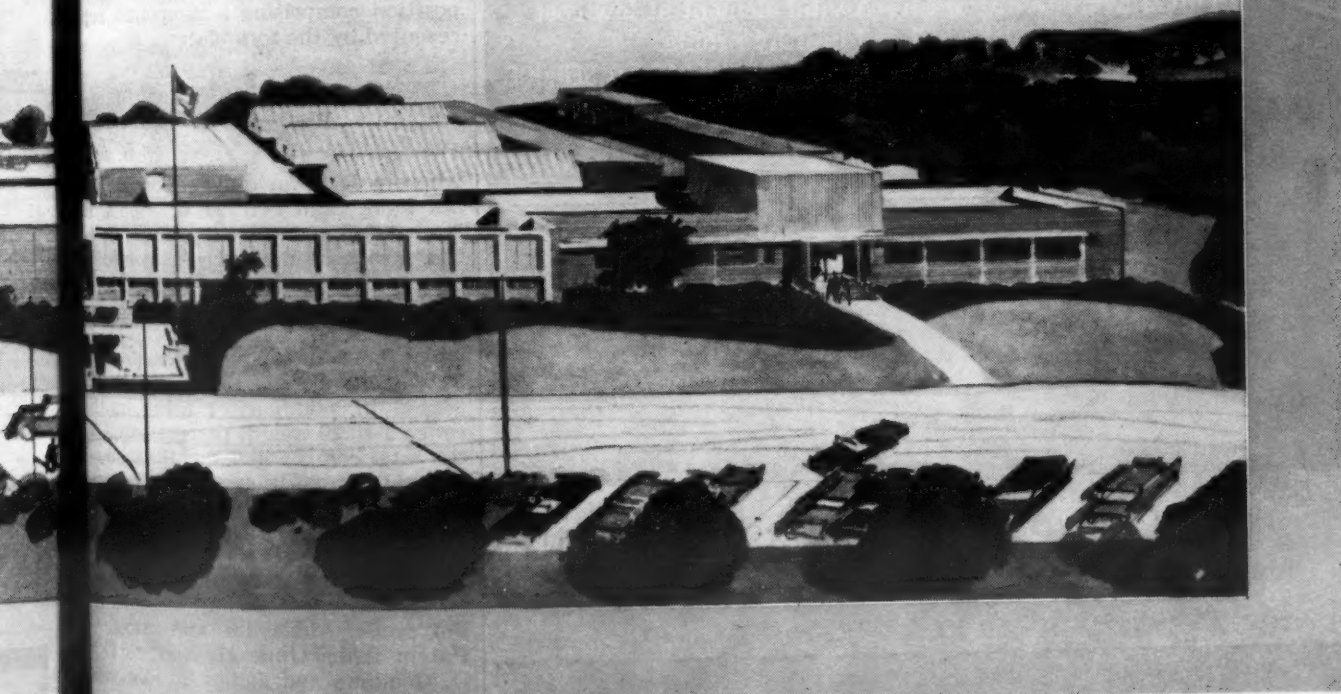
Cotton farmers in South Carolina have been urged to start their control program as quickly as possible.

Delaware Apples Hit by Insects and Diseases

NEWARK, DEL.—(June 14)—Blossom-end rot of apples has been found on various varieties at several locations in Delaware, and black rot

(Continued on page 20)

research center to progress in agriculture



crops are grown. This enables Shell researchers to conduct preliminary field tests for the development of new pesticides under actual farming conditions.

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Industry Patents and Trademarks

2,794,701

Ammonium Nitrate of Reduced Tendency to Caking and Setting on Storage and Method of Producing Same. Patent issued June 4, 1957, to Jack Ames, Ardrossan, and Edward Keith Pierpoint, Largs, Scotland, assignors to Imperial Chemical Industries, Ltd., London, England. Ammonium nitrate of reduced tendency to caking and setting on storage and of substantially normal white appearance comprising discrete ammonium nitrate particles carrying on their surfaces a deposit comprising a salt, soluble in a saturated aqueous ammonium nitrate solution at 20° C., of at least one condensation product of 1 mol. of formaldehyde and 2 mols of a monomethyl naphthalenemonosulphonic acid, the amount of said salt being from 0.025% upwards based on the

weight of the dry ammonium nitrate particles.

2,794,727

Method and Composition for the Treatment of Soil. Patent issued June 4, 1957, to Keith C. Barrons, Midland, Mich., assignor to the Dow Chemical Co., Midland, Mich. An agronomical practice which comprises impregnating soil with a composition made up of propargyl bromide as an active ingredient uniformly associated with an inert diluent as a carrier therefor, the impregnation being carried out so as to provide at least 3 parts by weight of the bromide compound per million parts by weight of soil.

2,795,486

Preparation of Ammonium Sulfate. Patent issued June 11, 1957, to Jan Plum, Haarlem, Netherlands, as-

signor to Shell Development Co., Emeryville, Cal. A continuous process for producing crystalline ammonium sulfate comprising continuously forming a double salt of calcium sulfate and ammonium sulfate by mixing finely divided solid calcium sulfate with a solution of ammonium sulfate in water in such proportions that there is formed at least one double salt of ammonium sulfate and calcium sulfate selected from the group consisting of $(\text{NH}_4)_2\text{SO}_4 \cdot \text{CaSO}_4 \cdot \text{H}_2\text{O}$ and $(\text{NH}_4)_2\text{SO}_4 \cdot 2\text{CaSO}_4$, and the solution in equilibrium with the double salt that forms contains ammonium sulfate in a concentration closely approaching but less than the minimum saturation concentration of ammonium sulfate in a solution of ammonium carbonate in water in which the ammonium carbonate concentration is at least 0.5% by weight of said solution, continuously separating the said double salt from the solution, continuously introducing carbon dioxide and ammonia into the separated solution in such amounts that ammonium

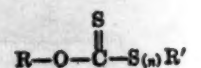
carbonate is formed in an amount stoichiometrically equivalent on a molar basis to the amount of calcium sulfate introduced to form the said double salt, the concentration of ammonium carbonate in said solution of ammonium sulfate being at least 0.5% by weight of said solution, continuously mixing said ammonium carbonate-ammonium sulfate solution with the double salt, continuously separating as product the crystalline ammonium sulfate thus formed, continuously removing solid calcium carbonate, and continuously returning the ammonium sulfate-containing solution thus obtained back to the first reaction theatre to form more of the double salt with calcium sulfate

2,794,495

Non-Caking Ammonium Sulfate Nitrate. Patent issued June 11, 1957, to Adolf Schmatloch, Oberhausen, Rhineland, and Franz Schaub and Walter Schuff, Oberhausen-Holten, Germany, assignors to Ruhrchemie Aktiengesellschaft, Oberhausen-Holten, Germany. Process for the production of granular non-caking ammonium sulfate nitrate, which comprises contacting a granulated weakly acid ammonium sulfate nitrate containing an iron salt with gaseous ammonia and recovering ammonium sulfate nitrate salt granules containing a member selected from the group consisting of iron hydroxide, iron oxide and mixtures thereof, precipitated substantially solely at the surface of said ammonium sulfate nitrate granules.

2,795,525

Method of Eradicating Nematodes by Applying thereto Sulfenyl Xanthates. Patent issued June 11, 1957, to Roy E. Stansbury and Lyle D. Goodhue, Bartlesville, Okla., assignors to Phillips Petroleum Co. A method of eradicating nematodes in soil infested therewith, which method comprises applying to said soil a composition comprising a compound represented by the formula:



wherein R is an alkyl group having not more than two carbon atoms, R' is an alkyl group having from one to ten carbon atoms and n is an integer selected from the group consisting of 2 and 3, said compound being dispersed in a hydrocarbon fraction which boils in the range 150 to 400° F., the amount of said compound dispersed in said carrier being in the range 1 to 20 weight percent based on the total composition, and the amount of said composition applied to said soil being in the range 10 to 100 pounds per acre.

2,895,526

Methods for Repelling Insects with Polycyclic Aldehydes and Alcohols. Patent issued June 11, 1957, to Lyle D. Goodhue and James T. Edmonds, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Co. A method for repelling an insect from an area comprising applying 2,3,4,5-bis (Δ²-butenylene)tetrahydrofurfuryl alcohol to said area.

2,795,527

Article of Manufacture for Destroying Insects. Patent issued June 11, 1957, to Leonard W. Gopp, Barrington, Ill., assignor to Chemical Marketing Corp., Chicago. An article of manufacture for destroying flying insects comprising an absorbent carrier, parathion impregnating the carrier and thiamine hydrochloride concentrated on the surfaces of the carrier.

2,795,557

Colloidal Sulfur Process. Patent issued June 11, 1957, to Samuel C. Carney, Bartlesville, Okla., assignor to Phillips Petroleum Co. The process of preparing a polymerization medium comprising adding 0.3 to 3 parts by weight of sodium stearate to 100 parts of water to produce an aqueous emulsion, adding 0.1 to 1

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FERTILIZER CONSUMPTION

(Continued from page 1)

Central region (Ohio, Indiana, Illinois, Michigan and Wisconsin) whose consumption was 139,414 tons greater than previous year. Other regions showing a gain in this category were the West South Central region (Arkansas, Louisiana, Oklahoma and Texas); and the Pacific region.

Approximately 64% of the decrease in fertilizer tonnage occurred in the three Atlantic coast regions, the report indicates. In 16 states scattered through the various regions, the consumption of all fertilizers was higher in 1955-56 than in the preceding year. These units, which in 1955-56 accounted for 35.52% of the U.S. consumption of fertilizer, showed a total gain of 587,222 tons (7.45%) over their consumption of 1954-55. The territory of Hawaii also showed a gain in use of fertilizer.

Mixtures, according to the report,

accounted for 66.58% of the quantity of fertilizers consumed. This figure, representing 14,775,653 tons comprised 1,536 grades. However, this consumption of mixed fertilizers in the 1955-56 year was 3.73% less than in the preceding year.

Fertilizer materials for direct application increased during the past fiscal year. In 1955-56, some 7,417,417 tons were consumed for this purpose, as compared with 7,378,612 tons the previous fiscal year. Increases were noted in natural organic materials, phosphate and potash, but chemical nitrogen materials and secondary and trace nutrient materials decreased.

Most of the decreases in consumption of chemical nitrogen materials comprised sodium nitrate, down 12%; ammonium nitrate-limestone mixtures, down 16% and ammonium sulfate, down 20%.

Phosphate rock was the only phosphate material that showed a large increase in consumption. It increased 330,812 tons, or 57%, nearly all of which was in Illinois and Missouri.

Consumption of potash materials for direct application increased only 0.9% (from 401,084 tons to 404,839 tons). However, among the individual materials, the use of the 58-62% grades of potassium chloride, comprising 76% of the total consumption of potash materials, showed the largest increase in quantity, 27,821 tons, or 10%.

The full report, complete with breakdowns of states, regions, grades, and comparative figures, will be published in the July 1 issue of Croplife.

CONSERVATIONIST NAMED

RENO—Dr. R. E. Eckert has joined the staff of the Max C. Fleischmann College of Agriculture, University of Nevada, as an agricultural research service range conservationist.

Minimum Grades For 1957-58 Set At Arkansas Hearing

LITTLE ROCK, ARK.—Ratios and minimum grades of fertilizer mixtures for 1957-58 were approved at a public hearing here June 17, when ten ratios and minimum grades recommended, and four others permitted.

Regulations covering fertilizer commerce were also adopted in Arkansas. The state law now makes the following provisions:

1. Requires reporting of shipments by invoice.
2. Sets registration fees on brands.
3. Sets penalties for deficiencies in nitrogen, available phosphoric acid and potash.
4. Sets penalties for weight shortages.

5. Empowers the plant board to set penalties on other guarantors constituents not mentioned in regulations.

6. Empowers the plant board to issue stop-sale on any shipment found deficient and require same be relabeled by manufacturer or returned to plant for reformulation.

Ratios recommended for Arkansas are: 0-1-1; 0-1-2; 0-2-1; 1-1-0; 1-1-1; 1-2-1; 1-2-2; 1-4-4; and 3-4-4.

Minimum grades recommended, respectively, are: 0-14-14; 0-10-20; 16-8; 10-10-0; 8-8-8; 6-6-12; 5-10-10; 3-12-12; and 6-8-12.

Other ratios and grades permitted in the state were listed as 0-2-3; 3-6; 1-3-9; and 2-3-9. Minimum grades for these ratios are 0-10-10; 3-9-18; 3-9-27; and 6-9-27.

Henry DeSalvo, head of the fertilizer, and pesticide division of the Arkansas State Plant Board, said that complete copies of the state regulations would be available early in July. The ratios and grades listed at the meeting do not include specialty fertilizers, he said.

Virginia Deletes, Adds Grades to Approved List

RICHMOND, VA.—The Virginia Fertilizer Grades Committee has deleted fertilizer grade 3-9-6 from its list of fertilizers which may be sold in Virginia.

The committee also deleted grade 3-9-9 for all crops except tobacco and added grade 3-18-18 to the list of approved grades. Also added to the list exclusively for the state solution and foliar spray fertilizers were the water soluble grades 20-20, 12-36-12, 19-22-16, 10-52-17 and 19-52-17.

The Fertilizer Grades Committee consists of the director of the Virginia Agricultural Experiment Station, director of the Virginia Truck Experiment Station and the commissioner of agriculture.

Zinc Deficiency Noted in Florida

GAINESVILLE, FLA.—A zinc deficiency in Alachua County corn fields has been noted, according to A. Andrews, assistant county agent.

He reported the zinc-starved Florida plants develop a condition known as "white bud" with the leaves the whorl turning whitish and an orange center white streak appears in other leaves.

Application of 10 pounds of zinc sulphate, mixed with regular fertilizer, has been recommended as treatment of each acre in the field.

CROP DUSTER INJURED

SACRAMENTO—Mack Terapin, 23, a crop duster, was injured when his dusting plane struck a power line at Antioch Airport and caught fire. Mr. Terapin was dragged from the wreckage by Harold Smart, Brewood, foreman of a crop dusting crew.



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SPOKANE, WASH.—521 East Sprague
ST. LOUIS, MO.—4251 Lindell Blvd.
TAMPA, FLA.—3737 Neptune St.
TULSA, OKLA.—1708 Utica Square
WICHITA, KANSAS—501 KFH Building

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

There is no mysterious element in the success of any dealer, whether he sells fertilizer, suits or umbrellas. Usually the rules that a successful dealer uses are the common sense rules which anyone can learn from experience, in books on merchandising or in trade press articles. The difference between the successful dealer and the unsuccessful dealer is that the latter does not put all the recommended rules into constant operation.

Occasionally one hears of a case in which a man builds a successful retail business and is succeeded by his son who doesn't have the merchandising astuteness and thoroughness of his father which result in the inevitable failure of the business.

Some time ago a leading financial journal published the story about a midwest retailer who was making 15% more net profit on his operations than most competitors. The policies which this successful man uses in his business are open to everyone. Here they are:

1. Pay cash for everything you buy. In that way you will not be tempted to buy too much, and you will take all discounts available. You will also work to keep your accounts collected so that you will have cash enough on hand to pay all bills, without borrowing.

2. Cut down your overhead to that of a low-profit operation. Work on the theory that today's profits are abnormally high. This means you will always be on the lookout to eliminate waste.

3. Worry about costs even when there is no apparent need to do it.

4. When you analyze your business, do so from the standpoint of profit rather than of sales. Your rate of profit tells how successful you are.

5. Let your employees have a fair share of the profits. A well paid employee, with the opportunity to earn more through extra efforts, usually has double the incentive of an average worker.

6. Use low pressure selling methods. Try to be of service and be an information bureau. That's what customers want most of all. The information you give freely, without high pressure, may make many a sale for you, without your realizing it. That's the best way to sell.

7. Buy and stock a line of merchandise in which you have faith.

8. Use satisfied customers as your best advertising medium. If you keep this slant in mind you will go out of your way to see that customers always want to come back and buy, and will tell their friends about you.

The new crop production guide for Minnesota, a publication of the University of Minnesota agricultural extension service, St. Paul 1, Minn., is out and it is a comprehensive but very readable chart. Minnesota dealers will find it fine for wall display.

A recognition of the important role played by fertilizer dealers is the Outlook, the new monthly publication of the Virginia-Carolina Chemical Corp. It was "born" a few months ago and it is certain to add momentum to the over-all effort being made by the fertilizer industry to merchandise more of its products and do it in a more enlightened manner. To borrow a phrase, "Long Live the Outlook."



By RAYMOND ROSSON

County Agent, Washington County, Tenn.

How simple farm problems would be if there were no such thing as change. There have been enormous changes in the past few years and the farmer is fast learning to adjust his plans to these changes.

Just to be real honest about these changes, I think most of our better farmers (on the young side of life) make changes to suit conditions even faster than his cousins in the towns or cities.

I realize there will be some readers who will not agree with such a statement but having contacted both rural and city folks for the past 35 years I want to say there are some real farmers operating today. There are farmers who not only make the "touchdown" they are "kicking the goal."

And if there were no farmers like that we would not see in print, "13% of our population produces a surplus of food and fiber while the other 87% have never produced a surplus of consumer goods."

I've been watching other changes and here's one I wish each dealer of any size (if his business will justify a salesman) would consider, and that is: Find a bright farm lad that has made good in 4-H Club work, graduated from an agricultural college, and spent four or five years in the field, doing extension work. Give him a show and tell him, "No business is good business unless it serves its customers."

As I write this, I am thinking of a firm which has a young agricultural graduate meeting and advising farmers and this firm's business is growing too.

You have to be on your toes these days if you keep up with our better farmers. Who wants to stay "put" anyway?



FARM CHEMICALS—This sales-inviting display of garden, lawn and farm chemicals is bolstered by a seed display at the new Donlea Town & Country Store, Albert Lea, Minn. Merchandise is well-displayed and clearly price marked, encouraging self-service shopping.

Farm Chemicals Added

Southern Minnesota Retail Store Stresses 'Town and Country' Sales

The development of retail stores to serve as supply centers for the gardener, suburban home owner as well as the farmer is typified by the Donlea Town & Country Store at Albert Lea, Minn.

The store is a recently opened center which can supply practically any item needed by the owner of a lawn, garden or farm. It is affiliated with Donovan's, Inc., a feed manufacturing and retailing company.

There are predictions that rural and urban economies and living will become more and more a part of one another. As one authority put it, the city limit sign no longer means the same as it did a generation ago. It is no longer a cultural, recreational, educational or economic boundary.

Perhaps developments of this sort will lead to more of the "town and country store" approaches in merchandising. At any rate, there is an example of this sort of development in the Donovan operation.

Joe Donovan, head of Donovan's Inc., cites a number of reasons why he decided to build a new retail store.

The store is designed to become the merchandising arm of the company, which will be coordinated with the main activity, that of manufacturing and distributing feed.

The company has for many years been handling many related lines of merchandise, such as fertilizers and other farm chemicals, pet foods and seeds. The retail store allows an expansion of these lines and the addition of many other items for town and country home owners.

The store permits all merchandise to be displayed to its best advantage so that a better selling job can be accomplished.

"The difficulty before we had the store was that there was no convenient, attractive and modern retail area in which to properly display allied merchandise," says Mr. Donovan. "We had to use a small area in the mill and this was not satisfactory. Now we have a modern, well-lighted,

inviting retail store to better serve our customers," he adds.

"The 'town and country' type of store seems to be what is needed in this community," Mr. Donovan continues. In commenting on this need, he brought out the point, as mentioned previously, that rural and urban economies and living are coming closer together.

"We have an increasing number of home owners who are shifting to the 'suburban' type of living," Mr. Donovan states. He explains it this way:

"There is a movement of population to small acreages around Albert Lea. We have investigated thoroughly and found the prospects good for specialty feeds and for lawn and garden supplies. Two federal highways will soon intersect near Albert Lea. Construction has begun and many farms are being cut into small acreages. Some are an acre or less, some are a little larger. The owners of these small tracts of land will be our main prospects. We also have a goodly number of prospects who live within the city, which has a population of about 20,000 persons including suburban residents."

The town and country store, measuring 60 by 70 ft. is devoted entirely to retail purposes except for Mr. Donovan's office.

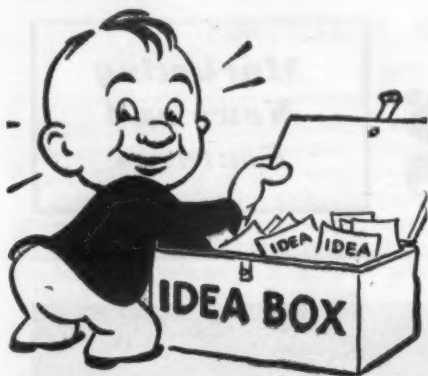
Street parking (limited to one hour) and a parking lot, in the rear of the store, permit 40 vehicles to be handled at one time.

The store is a one story, cement block building with a brick front. The "see-through" display windows provide plenty of light which is supplemented by fluorescent artificial lights.

The interior of the store is reminiscent of a modern super-market with numerous island displays and only a few wall shelves. All merchandise is easily accessible to prospects and is plainly price marked.

Here are some of the items handled in the store: Pet foods, fertilizers, pesticides, herbicides, seeds (field,

(Continued on page 14)



What's New...

In Products, Services, Literature

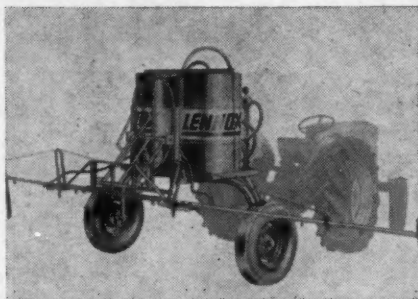
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No. 6590—Mineral Products Folder

The Minerals & Chemicals Corporation of America has prepared a folder entitled "Minchemistry at Work." The folder describes "quick, easy production of dry, free-flowing pesticides dust bases from sticky solid poisons." Properties of Attacloy, the company's Attapulgate carrier and diluent, are outlined. Secure the folder by checking No. 6590 on the coupon and mailing it to Croplife.

No. 6591—Trailer Mounted Sprayer

An "all-crop" pull-behind liquid fertilizer sprayer has been developed by Lennox Industries. The sprayer is called an all-purpose unit for use with any kind of spray—weed, insect or fertilizer. Among its features are a "full-floating" boom using a hydraulic shock absorber; a "break-away" hinge to enable wing booms to move backward and forward when an obstruction is hit; direct-drive pumps driven by tractor PTO shaft; 6-row boom with optional boom extensions to convert into an 8-row sprayer; spray controls on tractor; 13 flat spray nozzles with interchangeable tips; full line of accessories for special jobs; and aluminum and stainless



steel pressure regulator. Secure literature giving full details by checking No. 6591 on the coupon and mailing it to Croplife.

No. 6592—Fungicide

A technical bulletin on Terraclor, a new fungicide recommended for the control of a number of crop diseases, primarily certain soil-borne types, is announced by Olin Mathieson Chemical Corp. Terraclor is the firm's registered trade mark for pentachloronitrobenzene (PCNB). Terraclor is specific for a number of important soil-borne diseases. The product is available in various commercial formulations—as dust, wettable powders and emulsifiable concentrates. It is compatible with all insecticides and fungicides with a pH of 7 or below which are similar in formulation, company officials say. It is highly stable, rela-

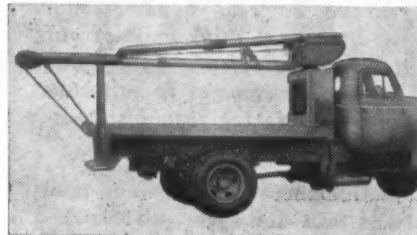
tively non-poisonous, and has a long residual, it is claimed. The product is broadcast or dusted in the row with suitable applicators. Conventional equipment is used for spray application. The material is non-corrosive. Additional information and literature are available by checking No. 6592 on the coupon and mailing it to Croplife.

No. 5722—Speed Reducers

A new, illustrated, 8-page brochure showing the line of Strong-Scott Manufacturing Co.'s speed reducers is available. The reducers are recommended for speed reduction of 1/2 to 50 H.P., on equipment such as elevator legs, conveyors and many other types of equipment. Check No. 5722 on the coupon and mail it to secure the bulletin.

No. 5692—Truck Crane

A truck crane unit has been added to the truck equipment lines of the Anthony Co., it was announced through officials of Truck-Crane, Inc., subsidiary of the Anthony Co. The truck crane unit requires 18 in. of space behind the truck or tractor cab and leaves the body free for the pay-



load, officials said. Loading, hauling and unloading are combined into one work unit, it is claimed. Hydraulic power is provided and the boom swing is 280°. It projects or retracts hydraulically in the horizontal position or at any point up to an 85° elevation. Both horizontal and elevating type booms are available. Capacity is 5,000 lb. and ground level operation is possible. Check No. 5692 on the coupon and mail it to secure full details.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

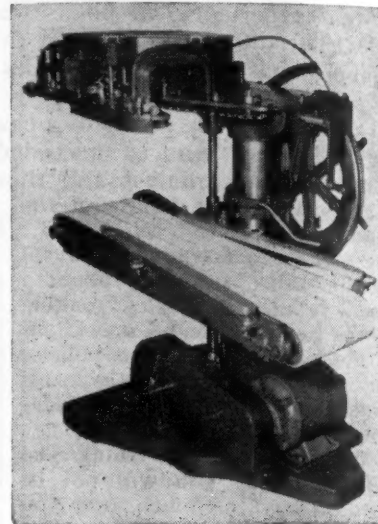
No. 5719—Disc Feeder

A new series of MECO SRV variable speed disc feeders, designed especially for batching or proportioning of crushed or ground dry material such as chemicals and additives, has been announced by the Manufacturers Equipment Co. The rate of discharge on the feeders is

said to be accurately controlled and can be varied during operation with a hand wheel adjustment. Several sizes are available. The smallest unit has a constant feed range from a light trickle up to 2,000 pounds per hour. Larger models can feed up to 80 tons per hour. Models equipped with paddles are available where intense bin agitation is desired. A descriptive bulletin is available. Check No. 5719 on the coupon and mail it to this publication.

No. 5736—Bag Closing Machine

A new descriptive folder outlining features of the automatic bag closing machine manufactured by the Hamer Machine Co. is available. The unit is described as a fully automatic closer for 2-, 5-, 10- and 25-lb. bags. Units are also available for 50- and 100-lb. bag sizes. An arrangement of chain drives compresses the top of



the bag and then seals it by a specially designed wire ring and up to 1,800 paper bags per hour can be closed, according to company officials. The models can be used in a variety of plant arrangements. Secure the folder by checking No. 5736 on the coupon and mailing it to this publication.

No. 5721—Pallet

The Sterling Lumber & Supply Co. reports a new development in pallet manufacture with its product called by the trade name, "Fine-Sawn" pallet. The firm's process is claimed to produce uniformly finished deckboards and stringers in fewer operations and with less waste than several other methods at less than usual cost. A "flocked" non-slip surface helps prevent bags and other items from slipping, according to the company. Details and prices are available without charge. Check No. 5721 on the coupon and mail it to this publication.

No. 6587—Lime, Fertilizer Spreader

Ten-ton loads of lime and fertilizer are claimed to spew from custom bodies on the International Harvester Company's model VF-192 motor trucks at a 1 1/2-tons-per-minute rate in soil building services provided by the Cooperative Grange League Federation Exchange, Inc. to member farmers in New York, New Jersey and northern Pennsylvania. Newest units of the 175-truck fleet GLF employs in this agricultural service are like that pictured above at Nichols, N.Y., RF-192 tandem models. The six-



Send me information on the items marked:

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| <input type="checkbox"/> No. 5692—Truck Crane | <input type="checkbox"/> No. 6581—Liquid Unit |
| <input type="checkbox"/> No. 5701—Valve Bag | <input type="checkbox"/> No. 6584—Soil Bag |
| <input type="checkbox"/> No. 5710—Buildings | <input type="checkbox"/> No. 6586—Applicator |
| <input type="checkbox"/> No. 5719—Disc Feeder | <input type="checkbox"/> No. 6587—Spreader |
| <input type="checkbox"/> No. 5721—Pallet | <input type="checkbox"/> No. 6588—Sulfur Brochure |
| <input type="checkbox"/> No. 5722—Speed Reducers | <input type="checkbox"/> No. 6589—Liquid Spreader |
| <input type="checkbox"/> No. 5736—Bag Closer | <input type="checkbox"/> No. 6590—Mineral Products |
| <input type="checkbox"/> No. 6579—Rotary Dryers | <input type="checkbox"/> No. 6591—Sprayer |
| <input type="checkbox"/> No. 6580—Chlorosis | <input type="checkbox"/> No. 6592—Fungicide |

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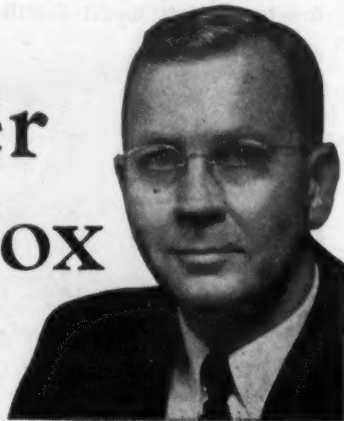
No. 26 in a series from the Spencer Chemical Magazine, "Today's Fertilizer Dealer"

The Spencer Question Box

Edited by

Proctor Gull

Chief Agronomist, Spencer Chemical Co.



"The Question Box" is one of the most popular features of TFD, Spencer Chemical Company's magazine for fertilizer dealers. Questions submitted by dealers are answered by Proctor Gull, head of Spencer's 7-man field agronomy team. Here are a few timely questions and answers from recent issues of TFD.

1. QUESTION: What general fertilizer recommendations can be made for home gardens?—J. J. DeHaan, Farmers Co-Operative Exchange, Pella, Ia.

ANSWER: For best results, of course, a soil test would be the ideal solution, in order to determine what ratio of complete fertilizer should be used.

But generally, in fertilizing home gardens the first recommendation would be to use a good application of well-rotted barnyard manure. Most of our gardens have a problem as far as organic matter is concerned, and this practice would take care of that requirement.

As to a general fertilizer recommendation, I would say this: For root crops, you might suggest a material such as 4-12-4, 5-20-20 or 6-24-12, and for leafy crops an analysis such as 8-16-16, and 8-8-6 or 16-20-0. The rate of application would be about three pounds per 100 square feet.

The fertilizer could be broadcast on top and worked into the soil, either by plowing under or spading in. Of course, with such crops as sweet corn, peas, beans and tomatoes, a higher yield can be obtained if in addition a small amount of nitrogen is sidedressed. But timing is important here! For instance, with tomatoes, it is important that the nitrogen not be applied until the fruit has begun to set.

A general recommendation covering a wide variety of garden crops is difficult, but after all, in most home gardens it is not going to be possible to fertilize each vegetable on an individual basis. Generally speaking we can say this—the leafy crops need large amounts of nitrogen, the root crops need large amounts of potash. Of course, both vegetable crops need adequate amounts of all plant foods to do well. By following even such general recommendations, you will probably find that almost all gardens can be improved considerably.

2. QUESTION: Are there any pros or cons for or against soaking seed corn in a fertilizer solution prior to planting?—Eugene Bardonner, Bardonner Farm Service, New Palestine, Ind.

ANSWER: There are more factors against the practice than for it. To get enough fertilizer on the seed to do much good, you immediately create other problems.

The biggest problem in such a practice is the salt concentration of the fertilizer (nitrogen and potash), which may inhibit germination. You may have experienced the same trouble by placing too much fertilizer salt with corn seed as a starter.

Trouble from starter fertilizer with less than 50 pounds of nitrogen and 50 pounds of potash is usually a matter of poor placement as mentioned above, and is common with the split boot attachment. Starter fertilizer should be placed about two inches to the side and one or two inches below the seed to minimize salt effects in case of dry weather and to give the true starter effect—and this is a far cry from applying fertilizer solution to the seed!

wheelers, with auxiliary transmissions, spread acreage that ranges from flat to hilly, rough and soft. Front truck tires have on and off-highway casings and the eight rear highway casings and the eight rear tires have lug treads. Spreading gear, fabricated in the GLF shops here, was designed by the cooperative's soil building division. Truck transmission is five speed, with direct in fifth. The auxiliary two-speed transmission permits specific range variances for lime (high) and fertilizer (low). Secure complete details by checking No. 6587 on the coupon and mailing it to Croplife.

No. 6588—Sulfur Brochure

The Stauffer Chemical Co. has published a comprehensive 48-page brochure on sulfur. The brochure contains a description of production and refining techniques, statistics on the world's production of sulfur, and notes on the various uses of the material. It also includes specifications for the several types of conventional and insoluble sulfurs used in industry and agriculture, and tabulations of the physical and chemical properties of sulfur in its different forms. A copy of the brochure, "Stauffer Sulfur," is available free on request. Check No. 6588 on the coupon and mail it to Croplife.

No. 6589—Hose Pump Spreaders

A selling and renting plan for Linck's liquid spreaders has been set up for dealers, according to the O. E. Linck Co., Inc. The program offers a line of concentrated lawn chemicals and patented liquid spreaders, which were developed under the patents of the University of Tennessee, according to Linck officials. A folder on the program outlines the firm's line of



lawn chemicals, including a crab grass killer, weed killer, fungicide, insecticide, fertilizer, nitrogen, iron and wetting agent. Secure the details by checking No. 6589 on the coupon and mailing it to Croplife.

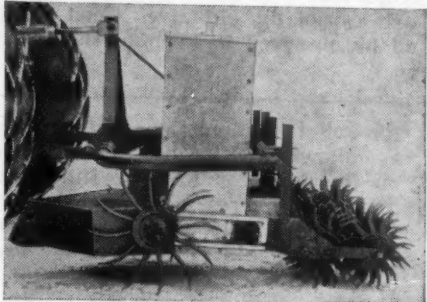
No. 5701—Pasted Valve Bag

Arkell & Smiths announces its new "SSS" (super side strength) multi-wall bag. The bag is a standard pasted valve bag with a reinforcing strip run longitudinally along each edge to reinforce the sides and the valve and bottom corners. The manufacturer claims its new bag may save up to 10% on the cost of a sewn valve bag and up to 5% on the cost of a standard pasted valve bag. The company announcement states: "In principle, the 'SSS' bag is superior to the sewn structural strip bag; when a ply is removed from the sewn bag, the bag is weakened along the ends. The bag also is superior to the strength end bag, for it gives the bag reinforce-

ment along the sides and shoulders; the strength end bag reinforces only the shoulders, and the sewing weakens the ends. For further information check No. 5701 on the coupon and mail it to this publication.

No. 6586—Dispenser-Applicator

The Howry-Berg Steel & Iron Works has engineered and tested a combined machine which is claimed to dispense all dry chemicals through the use of a conveyor belt arrangement, and thoroughly mixes the chemicals into the soil by means of special tiller applicator wheels. Both operations are said to be accomplish-



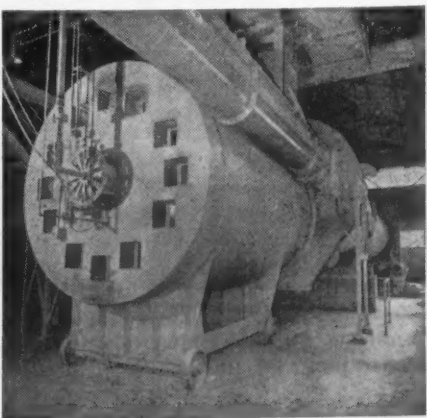
ed simultaneously, placing the chemicals only where needed, without loss from wind drift. Machines are attachable to tool or cultivator bars mounted on farm tractors and are obtainable for band widths of 6, 8, 10, 12, and 18 in. Tiller applicator units equipped with spray nozzle holders for use with wettable chemicals are also available for band widths 4 to 18 in., in increments of 2 in. Secure complete details by checking No. 6586 on the coupon and mail it to Croplife.

No. 6580—Chlorosis Treatment

Chlorosis—caused by a deficiency of iron in plant and tree leaves which often results in below-standard harvest—can now be treated through the use of Greenz 26, an iron complex especially developed by the Crown Zellerbach Corp. for use as a leaf spray. The firm's announcement states: "When applied to foliage, Greenz 26 solution: (1) turns chlorotic yellow leaves green; (2) restores vitality to iron-deficient plants; and (3) improves quality and quantity of crop from iron-deficient trees and plants. The product may also be used for soil application to potted plants or plants having small root volume close to the surface. It can be applied with any type of spray rig." For further information check No. 6580 on the coupon and mail it to Croplife.

No. 6579—Rotary Dryers

Information about Standard-Hersey dryers for processing potash and other chemicals is available from the Standard Steel Corp. The company, specializing in the design and manufacture of rotary dryers since 1878, has made rotary dryers up to 12 ft. in diameter for the fertilizer industry. These concurrent rotary dryers, with floating tires mounted on shims and held in place by keeper blocks, are typical of Standard-Hersey installations in the potash and fertilizer industry, company spokesmen said. Pictured is the burner end of an 8-ft. diameter by 60-ft. long rotary dryer in operation at the potash



Spencer Supplies the Nitrogen

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Gentlemen: I am a fertilizer dealer not presently receiving Today's Fertilizer Dealer magazine. Please send me a free subscription without obligation.

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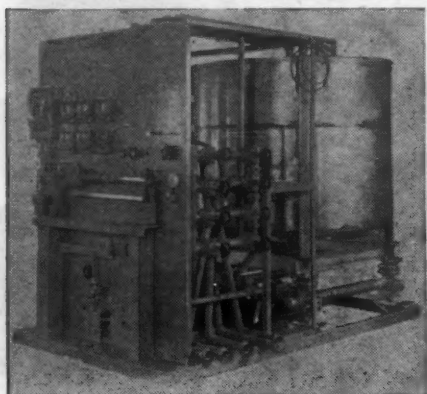
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refinery of the National Potash Co., Carlsbad, N.M. For complete details check No. 6579 on the coupon and mail it to Croplife.

No. 6581—Liquid Fertilizer Unit

Indian Point Farm Supply announces the production of its new five-ton batch liquid fertilizer unit.



The plant will produce 200 tons per day, state company officials. Their announcement continues: "Ingredients are weighed in the stainless steel tank. Potash and urea are introduced with the fiber glass cup elevator. All control valves for mixing, pumping to storage and loading out spray trucks are within easy reach of the operator at the control panel. The unit can be purchased separately or complete with all storage tanks, plumbing and load-out lines." Pictured is the skid mixing unit. To secure complete details check No. 6581 on the coupon and mail it to Croplife.

No. 5710—Steel Buildings

Black, Sivalls & Bryson, Inc., announces a new line of "Perfection" prefabricated steel buildings for factory, farm and commercial use. A truss-type building with panel side-walls and ends, the building is available in a variety of standard sizes and styles in regular increments up to 100 ft. in width, 20 ft. in height and unlimited lengths. Prefabricated wall panels, with door and window frames installed during fabrication, permit quick erection of the buildings, it is claimed. The roof is the only area requiring sheeting in the field. Available with the building are industrial windows, doors, translucent roof panels, insulation, guttering, ventilators and louvers. Partitions, cranes and monorails are also available upon special request. Secure details by checking No. 5710 on the coupon and mailing it to this publication.

No. 6584—Soil Sample Bag

A standard paper bag designed specifically to hold soil samples for chemical analysis has been developed by the Shellmar-Betner Flexible Packaging Division of Continental Can Co. The company states the bags are "clean and easy to mark" and "are made of sturdy bleached Kraft paper, lined with protective glassine paper." Each bag is equipped with a steel tie that rolls up to further protect the soil contents. They can be supplied either plain or imprinted with a form that lists the farmer's name, bag contents and crop information. The bag is 3 1/2 in. wide by 2 1/2 in. deep (front to back) by 9 1/2 in. tall. For complete details check No. 6584 on the coupon and mail it to Croplife.

OSC DIVIDEND

NEW YORK—A dividend of 25¢ per share has been declared on the outstanding common stock of Commercial Solvents Corp., payable June 28, 1957 to stockholders of record at the close of business on June 7, 1957. Previous payment was 25¢ per share on March 29, 1957.

RINGING THE CASH REGISTER

Fertilizer Library

A. H. Meinershagen, Higginsville, Mo., is one of many successful dealers who has developed a fertilizer library in his store, according to the Fertility Builder, a publication of the Soil Fertility and Plant Nutrition Council of Missouri. A handy rack of fertilizer literature is a real interest builder for fertilizer sales. Such booklets, bulletins and folders serve an advertising function as well as a source of helpful information on fertilizer topics for the customer. A wide variety of literature on most all subjects can be easily obtained from such sources as the U.S. Department of Agriculture, land grant colleges, fertilizer manufacturers and suppliers, fertilizer educational bureaus and through trade publications. Literature that illustrates nutrient deficiency symptoms, lists nutrient removal figures by crops and that gives general fertilizer recommendations are especially effective. Good house-keeping rules should be observed in keeping the library attractive and neat.

Study Reveals Full Fertilization Nets Highest Profits

COLUMBIA, MO.—The answer to a problem that is frequently tossed at fertilizer dealers by their farmer customers has been provided by the University of Missouri extension soils specialists. The question often posed by a customer is this:

"I have a limited number of dollars to spend on fertilizer and soil treatment. I know what the recommendations are for maximum corn yields, but I can't afford to follow that program for all the acres of corn I intend to plant. Should I give full soil treatment to a limited number of acres, planting in the remaining acreage without any treatment, or should I give all the acres I am going to plant partial treatment?"

John Falloon, soils specialist, has analyzed the alternatives and shows that full treatment on limited acreage is the most profitable. Here is how he figures:

Cost per acre for raising corn with no soil treatment is \$18. Cost per acre for full soil treatment is \$20, for a total of \$38 per acre. By using partial treatment at a cost of \$10 per acre, the cost per acre of raising corn could be reduced to \$28.

Average yield for corn with no treatment at the university has been 41 bu. per acre; for full soil treatment it has been 78 bu.; and for partial treatment it has been 50 bu.

Figuring corn at \$1.25 bu., the net profit per acre for the three different methods would be as follows:

No treatment: \$33 net profit per acre (41 bu. @ \$1.25 minus \$18 cost).

Full treatment: \$60 net (78 bu. @ \$1.25 minus \$38).

Partial treatment: \$35 net (50 bu. @ \$1.25 minus \$28).

Assuming that \$500 is to be spent

for soil treatment, it could be spent as follows: \$10 for partial treatment on 50 acres, or \$20 for full treatment on 25 acres.

The partial treatment method on 50 acres would produce a net cash return of 50 times \$35 for a total of \$1,750.

Full treatment on 25 acres would produce a net return of 25 times \$60 for a total of \$1,500. On the remaining untreated 25 acres the cash return would be 25 times \$33 for a total of \$825. The total of these two 25 acre plots would be \$2,325.

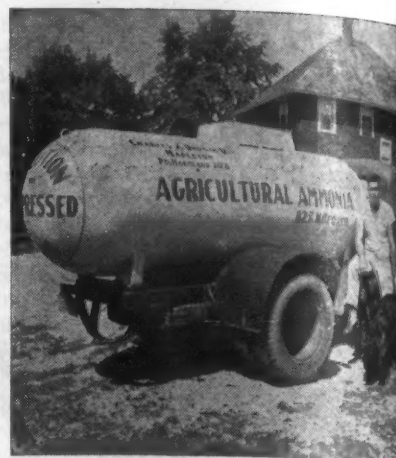
On the basis of these figures, Mr. Falloon said, there can be little doubt that full soil treatment on a limited number of acres is more profitable than limited treatment on a larger acreage. In this case the expenditure of \$500 in soil treatment produced a net income of \$1,750 on the partial treatment method of larger acreage as against \$2,325 for the full treatment on smaller acreage.

Phosphate Availability Tested in Minnesota

ST. PAUL—For some crops at least, it makes little difference when phosphate fertilizer is applied, as far as availability of that nutrient is concerned. A. C. Caldwell, University of Minnesota soils scientist, bases that conclusion on tests conducted on Fargo silt loam in the Red River Valley in recent years.

Dr. Caldwell used sweet clover fields that were plowed under in June, summer fallowed and planted to sugar beets the following spring. Then the land was split up into plots. Each one received 2 rates of application—200 and 400 lb. of phosphate—but at different times.

Some plots received the phosphate before the sod was plowed under, some had it broadcast in the fall and others had it broadcast the following spring just before planting time. All the phosphate used was "tagged" with radioactive isotopes.



TEST PLOTS SELL—Charles Unrath, Nashotah, Wis., anhydrous ammonia dealer, believes in letting test plots, plus constant follow-up, sell his fertilizer. Here he is shown with one of several tanks that he owns.

Wisconsin Dealer Lets Test Plots Sell Fertilizer

Charles Unrath, Route 1, Nashotah, Wis., is a dealer who gets his supply of anhydrous ammonia from a plant at Mapleton, Wis., and last year he got many farmers to try 5- and 10-acre plots, fertilized with anhydrous ammonia. This test plot idea, plus constant follow-up and sales presentations of anhydrous ammonia facts, has enabled Mr. Unrath to get a good volume of business from test plot farmers.

Mr. Unrath charges \$3 per acre for applying, and 9¢ a pound for anhydrous ammonia. Thus far, he has fertilized mostly corn and grain fields. He has had a number of corn fields with unfertilized strips, and he finds it excellent sales promotion to urge farmers to inspect those fields, or drive them there himself to show the difference and then talk fertilization for fall or spring.

"It is very seldom that one can get a farmer to put in an order for 40 or more acres fertilized, without having tried out a test strip," says Mr. Unrath. "They like to see for themselves."

"It is difficult to do pioneering work without a soil test," states Mr. Unrath. "Most of my customers know that their soils are shy in nitrogen, but the soil test shows this clearly and also shows any other deficiencies. We always tell the farmer that all necessary elements need to be added to get a profitable crop—not just nitrogen."

"Wisconsin farmers led all other states in production of corn per acre last year," he declares, "and as they fertilize more and more, they'll be mighty hard to beat," says Mr. Unrath.

Thus far, Mr. Unrath has applied anhydrous only to corn and grain crops, but he reports that it is being used with truck crops in some Wisconsin areas.

Mr. Unrath has a 1,000-gal. transport truck and also two applicators and several 100-gal. tanks.

"We are not having any trouble with collections," he states. "Farmers are willing to pay for fertilizer when due. More and more of them are realizing that fertilizer of the right kind is an excellent investment that it will help them produce more on an acre at lower cost."

IN NEW POST

STILLWATER, OKLA.—Dr. Harold Eck, Oklahoma A&M-USDA employed agronomist since 1951, has accepted a full-time agricultural research service position at the Southwestern Great Plains field station near Amarillo. At his new position, he will conduct fertility work on irrigated crops and physiology of plants under drouth conditions.



YEAR 'ROUND SALES—The Waukesha Lime Co., Waukesha, Wis., has a number of attractive billboards in Waukesha County which advertise year 'round lime spreading service. The signs are pictorial and help keep prospects conscious of their lime needs.



FARM SERVICE DATA

Extension Station Reports

Cool wet weather has improved prospects for Kentucky bluegrass seed yields in Iowa—but it's also improving favorable to weed and disease development. A seed specialist at Iowa State College, Louis Bass, said that spray treatments for both weed and disease control will increase seed yield potentials.

Treatment with 2,4-D will check broadleaved weed infestations, and will not affect the quality of the seed crop. Mr. Bass said good weed control in college tests has been obtained with an application of 1 lb. per acre of actual 2,4-D. Either ester or amine forms of 2,4-D are satisfactory. Mr. Bass and E. P. Sylwester, weed control specialist, have also found a 50-50 mixture of 2,4-D and 2,4,5-T (brush-killer) effective in controlling broadleaved weeds. The weed killers should not be applied when bluegrass is in bloom, Mr. Bass said. But treatment can be carried out anytime before or after this stage.

★

Failure to plant a big enough stalk population can cut corn yields as much as 30%, even if a farmer does a good job of fertilizing and tilling the soil, reports Dr. H. J. Mederski, Ohio State Experiment Station agronomist.

"Many farmers have corn plant populations of only 10,000 or 11,000 per acre," says Dr. Mederski, "where as Midwestern agronomists generally recommend at least 15,000 to 17,000 plants to help insure maximum yields per acre."

The Ohio agronomist says that insufficient rates of planting and improper placement of fertilizer are among important reasons why many farmers fail to have a big stalk population. "In Ohio," he says, "we like to see a farmer drop a seed every 7½ or 8 inches in 42-inch rows when he plants corn."

Dr. Mederski advises farmers to follow the recommendations of their state agricultural college in the matter of planting rates and fertilizer applications. "If a farmer is already applying the recommended amount of fertilizer and he steps up the stalk population per acre to the recommended rate, he probably won't have to put on added fertilizer," he says. "But if he is applying an insufficient amount of fertilizer with a large plant population, he will have to increase his total application of fertilizer."

★

Lime and fertilizer are a crop-boosting team that can increase corn yields nearly 30 bu. per acre, oats 18 bu. and hay production more than two tons per acre, compared to yields on unlimed and unfertilized fields. That's the report of L. E. Engelbert, University of Wisconsin soils specialist, in summarizing 12-year tests at Owen, Wis.

At the beginning of the tests, the soils men added lime at the rate of 4½ tons per acre. Then they applied 1,500 lb. per acre of 0-20-20 fertilizer. At planting time corn received 150 lb. of 3-12-12 in the row; oats got 300 lb. of 0-20-20.

Increases in corn yields on the limed and fertilized field totaled 358 bu. per acre for the 12 year period, or an average of 29.8 bu. per acre yearly. Oats yields increased 216 lb. or 18 bu. per year; and hay 25.1 tons, or 2.1 tons annually.

On fields getting lime alone, corn yields increased 13.7 bu. per acre an-

nually, or a total of 165 bu. for the 12 year period. Oats yields were boosted five bushels per acre or a total of 61 bu.; and hay yields went up about one-half a ton per acre.

Where fertilizer alone was used, corn yields increased 21½ bu. per acre annually; oats yields increased 17 bu. and hay yields increased 1.2 tons per acre.

★

Soils research workers have more evidence that fertilizers don't affect all crops the same way. In trials on fields in northeastern Minnesota, oats needed phosphorus more than any

other nutrient. Potatoes needed potassium most, and hay yields were boosted most by phosphate and potash together.

These reports come from A. C. Caldwell, University of Minnesota soils scientist, and W. W. Nelson, agronomist at the Northeast Experiment station, Duluth.

Last summer, they tested applications of nitrogen, phosphate and potash, alone and in combination, on oats, potatoes and hay.

Unfertilized oats averaged 16.4 bu. per acre. Plots that received phosphate alone yielded 43 bu.—nearly 6 bu. higher than oat plots receiving both phosphate and potash and only a bushel lower than plots that received complete fertilizer.

In hay, the best increase came from adding both potash and phosphate, but potash was the most limiting nutrient. Unfertilized first-year hay plots averaged about 2 tons per acre, while plots receiving potash alone averaged 3.06 tons. Potash and phosphate together brought yields up to

3.16 tons per acre, but first-year plots receiving all three nutrients actually averaged lower yields—2.77 tons—than potash-phosphate plots.

Results were similar in second-year hay, except that adding nitrogen in complete fertilizer did help some in this case. Nitrogen alone, though, made no increase.

Potato yields were highest—304 bu. per acre—on land that received nitrogen, phosphate and potash, but potash made more difference than any single nutrient. Unfertilized potatoes averaged 74 bu. per acre, compared to 155 where potash alone was added. Phosphate alone brought yields of 87 bu. per acre and nitrogen alone brought no yield increase at all in potatoes.

\$2 TO \$5 FOR \$1

EAST LANSING, MICH.—A \$1 investment in nitrogen fertilizer for corn can return between \$2 and \$5 in the fall, according to Jim Porter, extension soils scientist at Michigan State University.

**For hard to kill weeds—
use the "Old Proven Standby"**

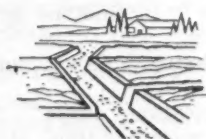
PENNSALT

**SODIUM
CHLORATE**

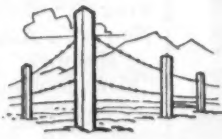
Sodium Chlorate is the time-proven herbicide to control those hard-to-kill, deep-rooted perennials. When used properly, it destroys both tops and roots of all plants including weeds and grasses. Heavy applications may prevent plant growth for a year or more.

KILLS Bindweed, Canadian Thistle, Hoary Cress, Leafy Spurge, Russian Knapweed, Bermuda Grass, Quack Grass and many other perennial weeds and grasses.

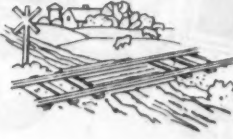
FOR POSITIVE CONTROL OF WEEDS AND GRASSES



Along ditches and canals

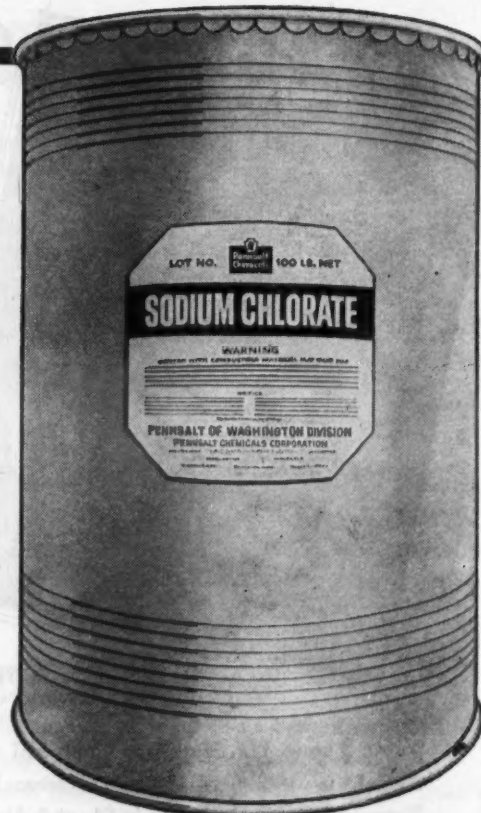


Along fences



Along roadsides and rights-of-way.

IN THE MIDWEST—write or telephone for free bulletin No. A-8 to the PENNSALT CHEMICALS Northern Agricultural Chemicals office, 309 Graham Building, Aurora, Illinois. Phone Aurora 6-8545.



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**Pennsalt
Chemicals**



Doing Business With

Oscar & Pat



When Oscar, the rotund, balding and exacting partner of the firm of Schoenfeld & McGillicuddy, opened the door to the big sales room that morning, he thought that something was different. Like a bird dog scenting something, he blinked, then looked around, and then he saw it.

The "it" was a large cardboard sign—about 18 in. high and 20 ft. long, which hung suspended from the ceiling over two islands. A big headline said, "Why Not Aim for 100 Bu. of Corn This Year?" and then a second line of copy, slightly smaller, read, "Give It a Shot of Anhydrous Now . . . Ask Us."

"Ach!" cried Oscar. "Such a big sign. I'll bet it cost a lot of money!" He ran forward, touched the sign, saw that it was doubled-sided. In other words, whoever had made it, had cut an old sign in half and made a sign with similar copy on both sides.

"Well!" said Oscar self-righteously. "If Pat did it, ach, he must have remembered what I said about costs. He used old cardboard, an old sign and painted copy on the blank sides. Maybe he is improving." But then he frowned, "Ach, but I bet he paid a fancy sum to have someone letter it. No, it looks a little homemade. Maybe he made it himself. Hm."

Frowning, he went to the coat rack, took off his raincoat and hat and then looked back at the sign. "But we don't need it," he defended. "We have been doing a lot of advertising on corn this spring. Too much. Why does Pat have to spend all that time monkeying around on signs and

other promotions? Better he should spend time on collections. Then we would get something."

At this moment, plump, ulcerish Tillie Mason came in, folded her multi-colored parasol.

"Look," Oscar said, considerably in a lather. "He has done it again. A crazy sign for more business. And the accounts need collecting. I suppose he's so tired he has to sleep until 10 this morning."

Tillie looked disturbed. "Don't you and Pat fight again, Mr. Schoenfeld," she warned. "At least not when I'm around. I've warned you two before. My ulcer won't stand it. I'll quit and get a job at the Leader Department Store. They've asked me several times."

"You get an ulcer, and ach, I get trouble up here," Oscar pointed at his head. "From him!" He glared balefully at Pat's empty chair.

Tillie sighed and sat down discouragedly at her desk. Oscar also sat in his chair and attacked his discount work. By the time Pat arrived, he had cooled somewhat, but when he glanced at the clock, he saw it was not ten o'clock. It was 10:15.

Pat knew the significance of that critical glance at the clock and then at him. "I worked late on that sign last night, Oscar," offered Pat sleepily. "It's a dandy, isn't it? That'll remind 'em to get anhy shots from now on—the next three weeks."

"Better some of them should get a shot in their pocketbooks so they come in and pay us," growled Oscar. "We don't need more business on the books. We need cash!"

Pat sighed. "Oscar, we can't just be content with collecting old bills.

We have to keep an eye on the future and keep selling, too. If we sell a man \$100 worth of fertilizer today through a promotion, and he doesn't pay us until 45 days, we can still use the money when it comes in."

"Use it!" echoed Oscar outraged. "He will be using our money. And we don't charge him a cent for it. Why don't these farmers pay cash? They have money for cigars and beer and Buicks and ministers and some of the farm women have pretty fancy dresses, too. How about us? If we get more money on the books, we will have to wear shirts made out of fertilizer sacks, nein?"

Pat laughed as he thought how Oscar would look clad in a fertilizer sack, with copy reading, "Badger Beauty" a brand of fertilizer they carried amongst others.

"Say," he grinned, "maybe that wouldn't be a bad idea."

"What wouldn't be a bad idea?" Oscar asked coldly.

"For you and me to wear shirts made out of fertilizer sacks. Our wives could sew them up to make 'em presentable. It would be good advertising."

Oscar choked. "Ach, such foolishness. Have you gone crazy, McGillicuddy? Have you no sense in your noodle?"

"I hope I have, Oscar," Pat said a little coldly. "I hope I have enough sense to keep from clouting you right on your nose. When was the last time a new idea got into your brain—the day you got married?"

A white-faced Tillie Mason got up from her desk, and with injured look marched out into the warehouse. Oscar's jaw went slack and he stared at Pat.

"Maybe I don't yell too much about new ideas!" he shouted wildly. "But when I get one, it don't bankrupt us, like yours would, if I didn't step on them."

The door from the warehouse opened and a burly farmer with stag overalls came in. He carried a package under his arm. "Hey, what's goin' on here?" he asked sharply. "I could hear you fellows a block away. Lose a dime under an island or somethin'?"

Then he looked at his package. "Oh, one of your men asked me to give this to you. They're busy in the back loadin', and a printer just delivered it. They signed for it."

Oscar took the package and looked at it, eyes staring. A sample card was pasted on the outside. Copy said, "Why Not Aim for 100 Bu. Corn This Year? . . . Give It a Shot of Anhy Now . . . Ask Us."

"Himmel!" Oscar burst forth. "More foolishness."

"They're suggestion cards," Pat said. "To be inserted into statements."

And then he and Oscar engaged in more swift flowing recriminations about business policies. The farmer listened for a while, grinning appreciatively, then he started to leave.

"Holy smoke," he said. "I thought the old lady and I really told each other off now and then, but these guys beat us. Wait till I tell her. Man, she'll enjoy it."

ALBERT C. ARNY DIES

ST. PAUL—Albert C. Arny, 79, former agronomist for 36 years at the University of Minnesota, died recently in St. Paul. Mr. Arny, who retired in 1945, was a well-known teacher and research worker in field crops and was a pioneer in pasture improvement and weed control.

TOWN AND COUNTRY

(Continued from page 9)

garden and lawn), poultry supplies, twine, charcoal, insecticides, tropical fish, sprayers, aerosol bombs, peat moss, small yard and garden tools, animal health products and rental equipment for lawn and garden care, such as roto-tillers, rollers, aerators, and seed and fertilizer spreaders. No heavy hardware and nursery items are handled.

Mr. Donovan admits that he first opposed the suggestion that he install a department for dog, cat and fish owners. Upon investigation he discovered that tropical fish owners rank close to dog owners in number and amounts expended on their hobbies. Sales of tropical fish and allied items during the first few weeks of the store's operation bear out the findings of the investigation, he says.

The recent grand opening of the Town and Country Store, Mr. Donovan feels, was a success in itself, drawing hundreds of shoppers—many of them new ones and it was responsible for moving considerable quantities of feeds and lawn and garden supplies.

Mr. Donovan has a high regard for the services provided by his suppliers and he showed his appreciation to more than 100 of them in a concrete manner a few weeks ago at an informal social hour and stag dinner which was the initial event in the three-day grand opening of the Town and Country Store.

One of the attractions at Donovan's is serving coffee and doughnuts to customers at all times. Formerly this was a feature at the mill only but now they are being provided at both the mill and the retail store.

Mr. Donovan feels that the firm's premium program has been the most successful merchandising promotion in operation. He calls it the "Donlea incentive plan." The firm began it 10 years ago and premium points are accumulated by retail and wholesale customers at so much per dollar or hundredweight purchase.

The firm has a premium catalog given to each customer and redemption of coupons runs about 90%, considered an unusually high percentage by Mr. Donovan. Premiums such as TV sets, wrist watches and radios are given. The premium program's over-all cost runs about \$8,000 to \$10,000 a year.

All forms of advertising are used by Donovan's and a regular schedule for newspaper, radio and direct mail advertising is followed. Two field service men have farm routes and make calls on each customer once every three weeks.



INFORMAL CHAT—Scores of suppliers' representatives were entertained at a dinner at which the host was Joe Donovan, owner of the Donlea Town & Country Store, Albert Lea, Minn., on the first day of a 3-day grand opening for his new garden and farm supply center. C. G. Backlund, office supply dealer from Mankato, Minn., is shown at the left, chatting with M. W. Mawhinney, manager of the Albert Lea plant of Smith-Douglass Co., Inc.

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THE HARSHAW CHEMICAL co.

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What's Been Happening?

This column, a review of news reported in CROPLIFE in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

The National Plant Food Institute, at its June 9-12 meeting at the Greenbrier Hotel, White Sulphur Springs, W. Va., voted to launch an expanded program of education and demonstration for promoting greater use of fertilizers. Six potash producing companies, however, objected to the financial arrangements of the plan, declaring that their participation in the NPFI's program would result in an "additional burden" in view of their present support of the American Potash Institute's program of similar nature.

New officers for the National Plant Food Institute were named as follows: C. T. Prindeville, Swift & Co., Chicago, chairman of the board; John A. Miller, Price Chemical Co., Louisville, Ky., president; Dr. Russell Coleman and Paul T. Truitt, executive vice presidents; W. R. Allstetter, vice president; Louis H. Wilson, secretary and director of information; and William S. Ritnour, secretary.

William J. Haude was named president of the Grace Chemical Co. division of W. R. Grace & Co. He was formerly vice president and general manager of Grace Chemical Co. at Memphis, Tenn.

American Potash & Chemical Corp., Los Angeles, announced that it will double its production capacity of granular potash at its Trona, Cal. plant. The project is expected to cost about \$750,000, which is part of the company's current improvement program expected to total some \$3,500,000.

Sales of liquid insecticides used for household and sanitary purposes totaled some 17 million gallons in 1956, the Chemical Specialties Manufacturers' Assn. announced at its midyear meeting in Chicago. Big gains in the sale of space sprays were tallied, the 1956 total being 4,188,304 gal. as compared to 1,797,515 gal. in 1955.

San Francisco Chemical Co., an affiliate of Stauffer Chemical Co., solved successfully the problem of beneficiation of some 700 million tons of phosphatic material located in Utah. The company was considering an offer to purchase electrical energy from the Flaming Gorge Dam for use in production of elemental phosphorus. The dam, located over the Utah line in Wyoming, has a potential of some 80,000 kw.

In another part of the U.S., investigations of phosphate ore deposits were considered "promising." The Beaufort Mining and Development Co., looking into ore deposits in Beaufort County tidelands of South Carolina, said that several months will be required before a final statement may be made about the quantity and composition of the material.

A pilot fertilizer mixing plant near Pittsburg, Kansas, was dedicated by Spencer Chemical Co. The plant will be used to develop research work on mixed fertilizer processing, and many of the findings will be made available to the fertilizer industry, according to Dr. John R. Brown, Jr., vice president in charge of research and development.

Dr. Charles E. Palm, formerly head of the department of entomology and limnology at Cornell University, was named director of the Cornell University Agricultural Experiment Station and director of research for the New York State Colleges of Agriculture and Home Economics.

Pesticide supplies for the 1957 season are ample for normal demands, according to the 1956-57 "Pesticide Situation" prepared by Dr. Harold H. Shepard, Food and Requirements Division of USDA, Washington, D.C. Production last year was larger than ever before, and domestic disappearance of materials rose considerably over the previous year. The total dollar value of pesticide exports was also up. Producers' over-all stocks at the end of the 1955-56 crop year were higher than they were a year earlier, the report said.

Nitric acid production in the U.S. showed a gain of 126,500 tons in 1956 over the previous year, it was announced by the U.S. Department of Commerce. The U.S. annual capacity on Jan. 1, 1956 for production of nitric acid comprised 3,019,000 tons in commercial facilities and 2,263,000 tons in government (primarily ordnance) facilities. The total of these capacities represented an expansion of 77% over the facilities in existence on Jan. 1, 1951.

Spokesmen for the USDA, the Food and Drug Administration and the National Apple Institute declared that the use of modern pesticidal chemicals is much less hazardous than was the application of older toxicants before laws were brought into effect. Spokesmen representing the organizations were Dr. E. F. Knipling, USDA entomologist; George P. Larrick, commissioner of Food and Drug Administration; and Truman Nold, executive secretary of the National Apple Institute, all of Washington, D.C.

Special stress on better selling methods was emphasized at the Virginia Beach, Va. meeting of the Carolinas-Virginia Pesticide Formulators Assn. May 13-15. A panel of industry people discussed development of new markets to counteract reductions in cotton and tobacco acreages; consignment selling, guaranteed sales policies, quantity discounts and abnormally high sales costs.

Appropriations for the soil bank's acreage reserve phase were killed for the next fiscal year by the House of Representatives, but the fund for the conservation phase of the program was left intact. Ezra Taft Benson, Secretary of Agriculture, opposed the cut, stating that the soil bank had not yet had a chance to prove its worth.

International Minerals & Chemical Corp. announced that it would start sinking a shaft for a new potash mine in the Canadian province of Saskatchewan. The new mine, which will operate at a depth of some 3,000 feet, will be situated on 450,000 acres about 150 miles east of Regina, Sask.

Northwest Nitro Chemicals, Ltd., Medicine Hat, Alberta, Canada, announced plans for a \$150,000 addition to its plant. The new unit will permit production of four new phosphate-nitrogen fertilizer formulations, according to T. L. Brook, president.

Stauffer Chemical Co. installed a new unit to produce granular insecticides, at Omaha, Neb. Granular formulations of DDT, aldrin and heptachlor will be made at the plant.

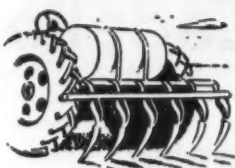
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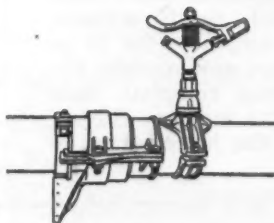
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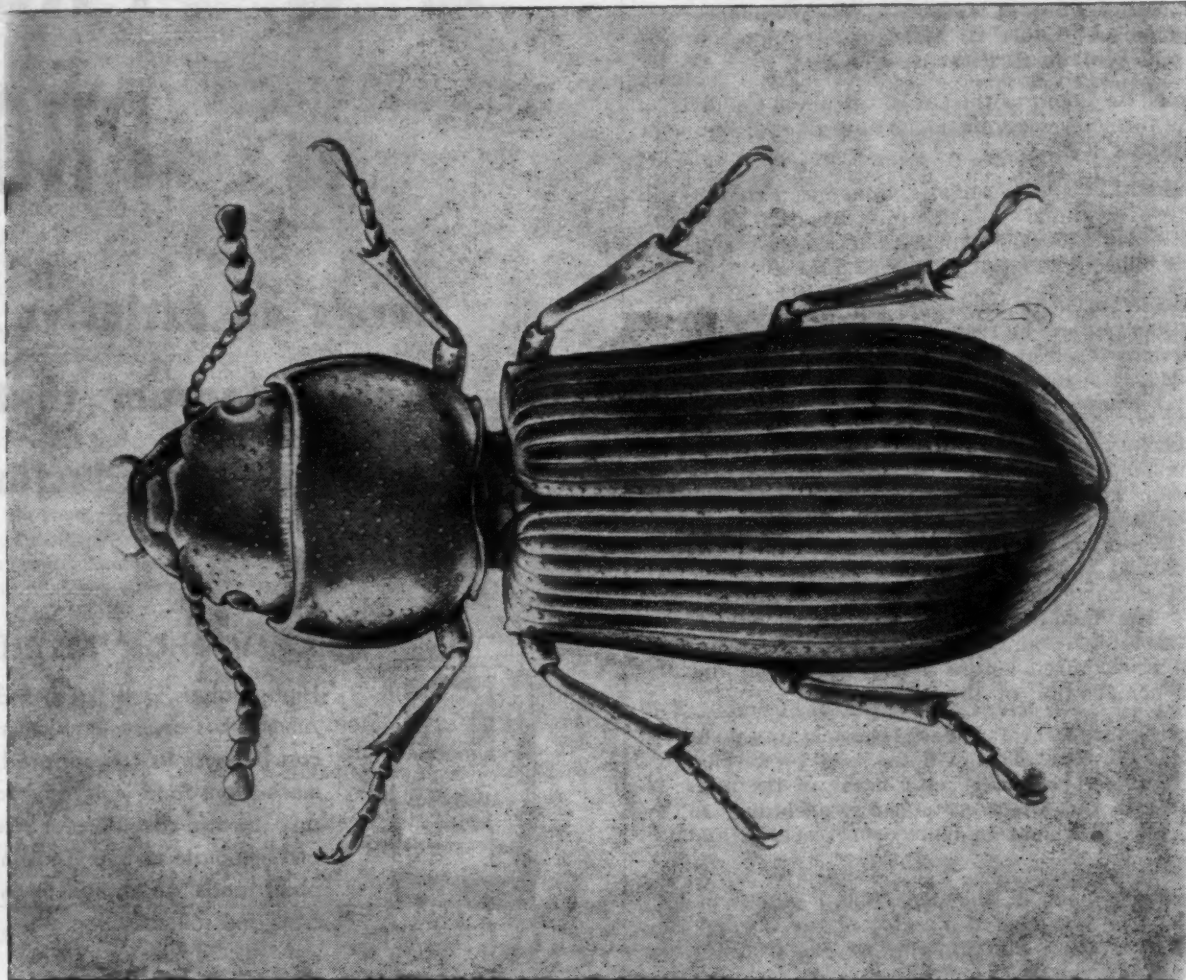


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4823-A

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board



Cadelle Beetle

How to Identify

Since this insect is relatively large, in its adult stage, it is usually easily identified. Being from about one third to a half inch in length, the bug can be inspected easily by laymen. Its color is dark, nearly black, and the body is jointed between the head-thorax and rear portion of the insect.

Habits of the Cadelle

This pest can overwinter in either the larval and adult stages, but not in the egg or pupal form. Females of the species are very productive, with egg counts reported as high as 1,300 in a single female. She lays her eggs on or near food, but nearly always in some protected place such as cracks in a granary wall or under the lid of food cartons. Such deposits are usually made in groups of from 15 to 60. From ten days to two weeks later, the larvae hatch. They are grayish-white, soft-bodied creatures with black head. Hardy animals, they may delay their development for 10 to 14 months if conditions are unfavorable, but under ideal conditions, may complete their development in less than 3 months. Having reached the pupal stage, the insect stays in

hiding places in walls and cracks from where it may be able to reach its food supply, grain.

Damage Done by Cadelle

Called "the most troublesome of the boring insects," the Cadelle feeds on a wide variety of stored commodities and is widely distributed throughout the U.S. It is primarily a pest of grain and flour and is commonly found in railway box cars, ships, warehouses, farm granaries and other places in which food-stuffs are stored or transported. The larva, which bores into woodwork where it transforms into its pupal stage, has jaws powerful enough to eat through many types of packages. It will cut through multiwalled paper bags or metal-foil-wrapped cartons overnight.

Control of Cadelle

A number of methods of both control and prevention against the Cadelle and other grain-infesting insects have proved effective. Because of differing recommendations in states and regions, local advice should be sought from county agents and state experiment station entomologists. Control methods of course include fumigation and/or use of other types of pesticidal chemicals.

Illustration of Cadelle furnished Croplife through courtesy of U.S. Department of Agriculture.

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Canada Fights Outbreaks of Hoppers, Cutworms

REGINA, SASK., CANADA—"To date this year the Plant Industry Branch of the Saskatchewan Department of Agriculture has shipped enough grasshopper insecticides to spray more than 100,000 acres of infested farmland in southern Saskatchewan," Hon. I. C. Nollet, minister of agriculture, reported on June 13. "All requests for chemical have been met from stores held since the last infestation six years ago," he added.

"In spite of a forecast of only light infestations in a few southern municipalities this year, grasshoppers have attacked grain crops over a wide area of southern Saskatchewan," Mr. Nollet said. "However, prompt action by farmers in applying aldrin and chlordane is reducing crop losses in seriously affected areas. Spray concentrates are being shipped to affected municipalities daily by the Plant Industry Branch. These chemical supplies are carryover from the last serious grasshopper invasion which ended in 1951. They have been maintained since that time as a strategic reserve to meet a situation such as materialized this spring.

Most seriously affected by grasshoppers is the south central part of the province, in the Mankota, Glentworth, Kincaid, Ponteix, Minton, Lake Alma and Wood Mountain districts. Less serious infestations are present in the Burstall, Lemsford, Abbey, Pennant, Conquest, Broderick, Loreburn, Midale and Radville districts, with minor activity at Carnduff and Gainsborough.

Mr. Nollet stated that the present infestation is not comparable to those of the 1930's or late 1940's when crop losses approached \$30 million in one year. However, in some municipalities the degree of infestation may be termed serious and could be the forerunner of another cycle of grasshopper outbreaks which have plagued Saskatchewan since settlement began. "Fortunately," the Minister added, "with modern chemicals available for control, it is possible to sharply reduce crop losses."

In other parts of Saskatchewan, red back cutworms are attacking crops, according to R. E. McKenzie, director of the Provincial Plant Industry Branch at Regina. Crops being affected include flax, rapeseed, oats and barley, with serious damage occurring in many cases. Damage to garden crops may also occur. Reports of infestations have been received from Lloydminster, Marsden, North Battleford, McDowell, Birch Hills, Viscount and Colonsay. The red back cutworm normally occurs in the park belt but may extend into the prairie region.

"Infestations are somewhat scattered and by no means occur in every field in a district. Counts of nine worms per square foot have been recorded in some fields," Mr. McKenzie said.

Fire Ant Invades Another Alabama County

CENTRE, ALA.—Definite identification of fire ants has been made in this northeast Alabama area, Julian Young, Cherokee county agent, reported last week. The first infestation was noted in the Melrose community and within three days other locations throughout the county were infested.

BARNEY MAHONEY DIES
KANSAS CITY—Barney Mahoney, 58, sales manager of the Douglas Chemical Co., died recently. A former Kansas City police lieutenant, he joined Douglas in 1942.

TVA Begins Spraying Power Transmission Rights-of-Way

KNOXVILLE—Chemical spraying of foliage for brush control along TVA's power transmission rights-of-way has started and will continue through August.

TVA uses three methods of chemical spraying, (1) spraying of foliage in late spring and summer, now under way, (2) spraying around the base of plants, usually during the dormant season, and (3) spraying of tree stumps after the initial rights-of-way clearing.

The transmission system now includes approximately 11,000 miles of line with rights-of-way averaging from 75 to 100 feet in width. To date more than 7,900 miles, or about 75% has received initial treatment. A second spraying is from 3 to 5 years after initial treatment, and a third application in from 7 to 10 years.

TVA said that cost of controlling rights-of-way brush with chemicals is approximately two thirds of the cost of control by mechanical method on a long-term basis.

Fears by some conservation groups that chemical spraying is harmful to wildlife are groundless, TVA said. Eliminating tall brush and trees gets rid of the undesirable woody species and lends itself to establishment of low growing grasses, herbs, and shrubs, a type of cover which tends to be productive of wildlife foods. The chemicals used are non-toxic to wildlife species when used in recommended concentrations.

According to Dr. A. H. Wiebe, TVA biologist, "a mature forest is the least productive from the standpoint of wildlife—plenty of shelter but no food. Where tall brush or trees are removed these places are, in effect, opened up for smaller stuff to grow, creating open spaces for deer browse and at times also these openings may be used by quail and doves."

California Chemical Employment Increases

SAN FRANCISCO—The chemical manufacturing industry in California showed a gain of more than 3% in total employment between March of 1956 and last March, according to the Division of Labor Statistics of the California State Department of Industrial Relations.

A gain of 1,400 workers was registered between the two months—from 37,500 to an estimated 38,900 during the current year. Employment rose by 100 employees between February and March.

Earnings of the production worker segment of these employees were also up on the average, from an estimated \$90.49 in March a year ago to \$94.80 last March. This was a reflection largely in increased average hourly earnings, up from \$2.21 to \$2.32 during the same period, while the average work week remained almost the same, dropping from an estimated 41.0 hours to 40.9 hours.

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JOHN SPICER, JR., technical specialist for the southeastern states, with headquarters in Goldsboro, N. C.



OVE F. JENSEN will serve manufacturers in the midwestern states, with headquarters in Maple City, Michigan.



PHIL B. TURNER will provide technical counsel for plants in the Northeast, and will work from Wilmington, Del.

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- Gives mixed goods better "feel"—minimizes caking, segregation and dusting.
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AMMONIA LIQUORS

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



COULEE PLANT—Shown above is Phillips Pacific Chemical Co.'s new Coulee anhydrous ammonia plant, which has started full-scale operations. The plant is located seven miles southeast of Kennewick, Wash. and Pasco, Wash. on the Columbia River. It has a capacity of 200 tons of anhydrous ammonia a day.

Phillips Pacific Puts Coulee Plant Into Full-Scale Operation

PASCO, WASH. — Phillips Pacific Chemical Co. has started full-scale operation of its new Coulee anhydrous ammonia plant in the Tri-Cities area of southeastern Washington.

The plant, located on the west bank of the Columbia River, seven miles southeast of Kennewick and Pasco, is designed to produce 200 tons per day of anhydrous ammonia. It is jointly owned by Phillips Petroleum Co. and Pacific Northwest Pipeline Corp. Phillips Chemical Co., a wholly owned subsidiary of Phillips Petroleum, is operator of the plant. W. D. Payton is plant manager.

The anhydrous ammonia will be marketed throughout the Northwest by Phillips Petroleum Co.'s sales department, which has division offices in Spokane and Salt Lake City.

Natural gas is supplied through Pacific Northwest's pipeline from the

San Juan basin of New Mexico and Colorado.

It was the availability of natural gas in the Northwest that made the construction of the plant possible, Phillips officials said. Construction was started just over a year ago by Hydrocarbon Construction Co. under the direction of Fish Engineering Corp.

Other factors listed by company officials as influencing the choice of the location in the Tri-Cities area of Pasco, Kennewick and Richland include the transportation provided by the Columbia River, three major railroads, two airports and a network of highways, the assurance of adequate housing for employees, the availability of sufficient labor and an abundant supply of water for manufacturing purposes.

The firm was host June 15 at an open house at the new plant.

FERTILIZER DESTROYED

HERRICK, ILL. — Fifty two tons of bagged fertilizer were destroyed when fire razed a storage building here recently. The fertilizer was owned by Gene Funk, operator of an elevator.

Dr. Donald S. Taylor Named Vice President, United States Borax

LOS ANGELES — Dr. Donald S. Taylor has been elected vice president in charge of research of the United States Borax & Chemical Corp. to succeed G. A. Connell now retired, it is announced by James M. Gerstley, president.

Dr. Taylor, who will take over his new duties immediately, will make his headquarters in the corporation's new \$1,000,000 research center which is now nearing completion in Anaheim, Cal.

A native of Albany, Ore., where he was born on June 1, 1914, Dr. Taylor was educated in schools there and graduated in 1935 with a BA degree from Linfield College, McMinnville, Ore. In 1938, he received a Ph.D. degree from the California Institute of Technology.

Dr. Taylor worked for three years as a research chemist with the Shell Development Co., Emeryville, Cal., and for four years for the DuPont Company in El Monte. In 1945, he joined the Pacific Coast Borax Company's research department in Pasadena.

Dr. Taylor was advanced to research engineer in 1950 and, in 1955, to director of industrial research.

Last July, when the Pacific Coast Borax Co. merged with the United States Potash Co. to form the United States Borax & Chemical Corporation, Dr. Taylor was placed in charge of the combined companies accelerated research program, a post he has held until now.

Nickels for Know-How Vote Set in North Carolina

RALEIGH, N.C. — North Carolina farmers and other feed and fertilizer users will go to the polls Aug. 23 to vote whether they want to continue another three-year program of research.

The program is known as "Nickels for Know-How" through which fertilizer and feed users contribute to agricultural research and education for a nickel per ton of feed and fertilizer they buy. The referendum will be held in every county.

L. Y. Ballentine, North Carolina agricultural commissioner, has been named state chairman for the referendum with A. C. Edwards, Hookerton, T. C. Auman, West End, and Horace J. Isenhour, state director for the Farmers Home Administration, as vice chairmen.

In the first five years of the program more than \$700,000 raised by the levy was turned over to the North Carolina Agricultural Foundation, which is headed by R. W. Dalrymple.

July Meetings Scheduled in Georgia

ATLANTA—Winners in the Georgia Grazing System Contest will be honored at a series of July meetings, sponsored by the University of Georgia and the Georgia Plant Food Educational Society, J. Fielding Reed, secretary-treasurer of the society, has announced.

The meetings will be held at the E. O. Cabiness farm in Oglethorpe County July 1, the A. C. Ewing farm in Newton County July 9, the H. D. Burton farm in Thomas County July 11 and the Sam Neville farm in Bulloch County July 12.

DUSTER KILLED

ROBSTOWN, TEXAS — A crop duster, Ralph Roy Jackson, 27, of Bryan, Texas, was killed recently when his plane crashed on a farm about two miles northeast of here. Mr. Jackson was starting his first day of the current season and was employed by the Cardwell Insect Control Co. of Robstown.



Julian A. Rogers

Julian A. Rogers Named Vice President Of Best Fertilizers

LATHROP, CAL. — Lowell W. Berry, president, of the Best Fertilizers Co., has announced the appointment of Julian A. Rogers as vice president in charge of production. In this capacity Mr. Rogers will have charge of the company plant at Lathrop, Cal., where present operations include production of phosphoric and sulfuric acids and the production and shipment of 300 tons per day of pelleted fertilizers.

Mr. Rogers will also be in charge of concluding contracts for construction of an anhydrous ammonia plant to be located adjacent to the present plant facilities.

Mr. Rogers was formerly with W. R. Grace & Co. where he was head of the manufacturing department of its polyethylene plant in Baton Rouge, La. He formerly was head of the ammonia department of Grace Chemical Co. in Memphis, ammonia plant superintendent of Mississippi Chemical Corp., and chief supervisor with Hercules Powder Co. in its ammonia plant at Hercules, Cal. and Louisiana, Mo. Mr. Rogers attended Peabody College and Southern Methodist University where he studied mechanical engineering.

Fred V. Grau Named Nitro-Form Director

WOONSOCKET, R.I. — Dr. Fred V. Grau has been named director and manager of university and college relations for Nitro-Form Agricultural Chemical Co., according to an announcement by James M. O'Donnell, president. Dr. Grau joined the firm last October.

In his new post Dr. Grau will be responsible for the outlay of funds to carry out the firm's research work in various institutions, and will maintain contact between the investigators and the company, Mr. O'Donnell said.

Virginia Meetings

BLACKSBURG, VA. — Virginia farmers will be brought up-to-date on research underway with field and forage crops at a series of field days at branch stations of Virginia Polytechnic Institute Agricultural Experiment Station this summer. VPI agronomists give this schedule: July 23-26, Pasture Research Station, Middleburg; July 26, Bright Tobacco Research Station, Chatham; Aug. 8, Southside Station, Charlotte; Aug. 12-16, Tidewater Station, Holland; Aug. 14, Southwest Station, Emory; Sept. 19, Main Station, VPI, Blacksburg; Oct. 1, Eastern Virginia Research Station, Warsaw, and Oct. 2, eastern shore substation of Virginia Truck Experiment Station at Painters.

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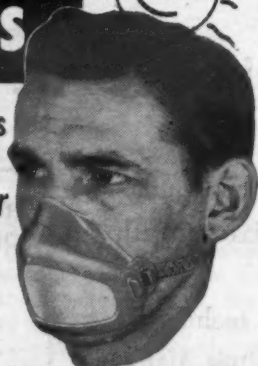
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125 Agricultural Workers From 28 States Attend TVA Conference and Tour

KNOXVILLE—The 9th annual Tennessee Valley Authority out-of-valley states test-demonstration conference and tour which began at Wilson Dam, Ala., was attended by about 125 agricultural workers from 23 non-valley and 5 Tennessee Valley states.

Ralph E. McKnight, chief of the test-demonstration branch of TVA's division of agricultural relations, noted that the tour members were one fifth agricultural college administrators, one third farm specialists and 39 county agents. He said there are now 28 states enrolled in the educational and demonstration program.

Touring guests visited test-demonstration farms, rural development farms, farm and home development farms, organized communities and industries in Alabama, Mississippi, Tennessee and Kentucky the week of May 6-10. They first inspected facilities at Wilson Dam for fertilizer development. This included a study of steps in fertilizer processes from the laboratory through the pilot plant and to the demonstration-scale plant. They also viewed greenhouse tests where the many test-tube-created fertilizers are screened during TVA's fertilizer development operations.

Dr. Leland G. Allbaugh, director of agricultural relations for TVA, welcomed the group. He commented:

"We have always felt that test-demonstration farms are an important link between the testing of new practices by experiment stations and their widespread adoption by farmers. A few states are locating their test-demonstration farms around experiment stations or substations. Not only do the test-demonstration farmers visit the experiment stations, but the experiment station personnel are visiting these farms to help accelerate the process of practice adoption..."

"Other states are using test-demonstration fertilizer at varying rates to try and determine the optimum fertilizer rates..."

"In some areas new crop varieties are being tried on test-demonstration farms to compare fertilizer response and to find the varieties most adaptable to the area."

"...To me, this is another unique feature of the test-demonstration program—the two-way flow of information from farms to the colleges and from the colleges to the farms."

Dr. Allbaugh continued: "Some of the states recognize the value of test-demonstration farms in pointing up problems in the counties... More states are basing fertilizer recommendations on soil tests than ever before... Some state reports indicate that the test-demonstration program develops leadership. These co-operators gain leadership ability from relating their experiences on tours and meetings, and by working so closely with extension personnel..."

Among reports on test-demonstration activities in the various states, Indiana reported greatly increased efficiency in the use of farm land in the program. Acre returns per crop following the use of TVA's fertilizers were up from 20 to 100%. Greatest returns were from the use of fertilizer on pasture, enabling a larger livestock program to be carried on.

Despite dry weather, Missouri test-demonstration administrators reported increased yields. Farmers in the program there are experimenting with placing fertilizer and lime in the subsoil.

Ohioans reported that "the test-demonstration program has been most significant for innovating the use of high-analysis fertilizers."

Twenty-seven test-demonstrators in 6 counties in southern Illinois had record crop yields and earnings in 1956. Farms were mostly on soil lacking in organic matter and low

in mineral plant food where tight subsoils do not allow tile to function properly.

"The (soils on these) test-demonstration farms have an average productivity rating of 27 compared with 75 or higher for most farmland in central or northern Illinois" the report said. "Twenty five years ago much of the land in the claypan area was considered unfit for corn production and was allowed to grow up in Spanish needles and tickle grass. Thousands of acres were idle. Red-top was the principal crop."

J. H. Walthall director of TVA's division of chemical development, outlined with other staff members some of the changes in fertilizer development.

P. J. Bergeaux, extension agronomist at the University of Georgia,

said "Georgia farmers could increase their income by over \$200 million annually above fertilizer cost if they followed college recommendations on corn, cotton and pastures. Half the Georgia soils are very acid and low in both phosphorus and potash. Proper use of fertilizer and lime is one of the cheapest and most effective production tools in agriculture today."

The agriculturists were acquainted with the community approach in Lee and Tippah counties, Mississippi, and in Henry County, Tennessee. Most tour members agreed with a fellow member from Wyoming: "I'm amazed at the way rural people here pitch in to help each other," he said.

In the Calvert City, Ky., industrial area, the tour party listened to various problems connected with developing a heavy industry center. The problems include acquiring land near vital physical resources of transportation, water, power and a steady labor supply. There, many businesses

CROPLIFE, June 24, 1957—19

and plants with a total investment of about \$100 million were established inside 10 years.

States represented on the tour included Alabama, Colorado, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Washington, Wisconsin and Wyoming.

WEED CONTROL

DIXON SPRINGS, ILL.—Chemical sprays can help keep weeds under control in corn fields if they are too wet for cultivation. G. E. McKibben, extension specialist at the University of Illinois Dixon Springs Experiment Station, says spraying after the corn is up usually works best. Experiments with post-emergence spraying at the station have shown it to be effective in eliminating one cultivation with no cut in yield.



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H. M. Betzig

H. M. Betzig Named Vice President of Davidson-Kennedy

ATLANTA—Davidson-Kennedy Associates Co., designers and constructors of chemical plants, has announced the appointment of H. M. Betzig as vice president-engineering.

Mr. Betzig graduated from Carnegie Institute of Technology in chemical engineering and worked in chemical production prior to entering military service. While in the corps of engineers he was assigned to Carbide and Carbon Chemicals Corp. as engineer on the atomic bomb materials plant at Oak Ridge, Tenn. He joined the chemical plants division of the Blaw-Knox Co. in 1946, serving as project engineer and then as principal engineer for its Chicago office. Prior to joining Davidson-Kennedy Associates he was chief engineer for Pollak and Skan, Inc.

In his new assignment with Davidson-Kennedy Associates Co. he will direct the engineering and project management activities as well as personnel recruitment.

Altas Announces Executive Changes

WILMINGTON, DEL.—Atlas Powder Co.'s directors have effected several changes in the board and officers of the company.

Preston W. Parvis, secretary and treasurer of the company, was elected a director. He succeeds William J. Wiley, who has resigned as a director and financial vice president. D. J. Carroll Copps and Edward J. Goett, now vice presidents, were designated senior vice presidents. Robert J. Reilly, presently director of the company's economic evaluation department, was also elected an assistant treasurer.

With the foregoing changes in directors, the Atlas executive committee now will have the following members: Ralph K. Gottshall, chairman, Charles C. Gammons, and Mr. Copps and Mr. Goett. Mr. Gottshall is president of Atlas, and Mr. Gammons is a vice president and general counsel. Members of the company's finance committee will include Isaac Fogg, chairman, and Mr. Gottshall and Mr. Parvis. Mr. Fogg is chairman of the Atlas board of directors. Mr. Gottshall simultaneously announced that John H. Leary had been appointed assistant to the president. Mr. Leary previously had been assistant to the financial vice president.

North Dakota Tonnage

BISMARCK, N.D.—North Dakota's 1956 fertilizer consumption totaled 76,200 tons, a gain from 58,693 tons in 1955, the State Laboratories Commission reports. The 1956 figure includes 26,200 tons of mixed goods and 50,000 tons of materials.

INSECT NOTES

(Continued from page 5)

is present on Lodi. The scab situation is unchanged.

Mites are increasing on a planting of Delicious apples near Bridgeville, but no fresh codling moth stings were observed up to the middle of June.

First adults of Japanese beetle were seen on rose and Japanese cherry at Harrington, June 12. Potato aphids were generally light on potatoes, but very heavy on tomatoes near Bridgeville.—Donald MacCreary and J. W. Heuberger.

Minnesota Reports Egg Laying by Grasshoppers

ST. PAUL, MINN.—Two-striped grasshopper eggs are developing rapidly (June 14) and a general hatch was expected along ditch banks and field margins. *M. femur rubrum* eggs

are also found in all stages of development depending on ground cover. These, too, can be expected to develop rapidly and will be hatching generally soon after the first cutting of alfalfa. Farmers are being urged to watch carefully and prepare for pesticidal application.

Pea aphids are building up in alfalfa and sweet clover in northwestern Minnesota. European corn borer pupation was proceeding rapidly as follows: Southwest, 75%; West Central 83%; and South Central 94%.

A heavy infestation of two-spotted mite is reported in strawberries near Twin City area. Growers were advised to use pesticides for control, leaving ample time before harvest.

Indiana Prepares for Mite Infestation

VINCENNES, IND.—Populations of both European red mites and two-spotted spider mites continue to increase. As yet, no bronzing of apple foliage due to two-spot feeding has

been observed. Severe infestations of two-spot have been found in local flower gardens.

Codling moth larvae are beginning to leave the fruit and in a collection of infested apples at this laboratory are beginning to pupate. No additional moths have been taken from emergence cages; however, a few live pupae are still present under bands around trees.

It is expected that second brood red-banded leaf roller larvae will be found at any time now. Secondary infection of apple scab continues to be a problem and must be watched very closely.—Merrill L. Cleveland.

Alabama Tonnage

MONTGOMERY, ALA.—April fertilizer movement in Alabama totaled 292,963 tons, compared with 312,762 tons in April, 1956, according to the Alabama Department of Agriculture and Industries. Sales for the first seven months of this fiscal year (October-April) totaled 685,359 tons, down from 766,093 tons in a comparable period a year earlier.

sales
for richer [^] fields this fall...

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announces

FOUR* special emphasis ISSUES

devoted to
fall fertilization
and maintenance of pasture and range lands

** editorially tailored to 4 crop-areas
to assure top advertising impact*

Now! For the first time! Croplife offers four special emphasis issues covering fall fertilization and pasture maintenance. Four hard-hitting issues to pinpoint the situation in four crop-areas. Each special-emphasis issue will be a complete report—editorially tailored to the crop-area it will reach. That means you can tailor-

July 15, South

July 22, Midwest

July 29, West

August 5, Northeast

make your advertising message for maximum impact and effectiveness. The map above shows the states included in each of the four regional distributions... the dates at left are those of the issues. Plan now to hit all or any combination of these regions with your sales story. Your message will be in the "good company" of sound editorial copy.

--- here's why your ad will sell --->

G.L.F. Exchange Forms Merchandising Division

ITHACA, N.Y.—Creation of a merchandising division to supervise all sales activities has been announced by E. H. Fallon, assistant general manager of Cooperative G.L.F. Exchange.

Ronald N. Goddard, former manager of G.L.F. service agencies division, has been named manager of the new division, which includes all personnel in sales, and combines several departments from other divisions. Included are commodity specialists, hardware and equipment purchasing and warehousing, advertising and promotion.

Glenn E. Edick, former manager of farm supplies division, was named to a new post as director of distribution. He will correlate activities of all retail divisions.

The new arrangement of retail divisions includes the new merchandising division, egg marketing, R. R. Flumerfelt, manager; petroleum, R. B. Fitch, manager; and three area offices formerly in service agencies division.

sion. Area managers Charles Riley, Canandaigua; Garland Clark, New Hartford; and Nelson Houck, Somerville, N.J., become assistant directors of distribution. Service agencies and farm supplies divisions are discontinued.

C. E. Dayton, former director of retail services, has been named assistant secretary of the G.L.F. Exchange. His chief responsibility will be membership relations, Mr. Fallon said.

Entomologists Unable To Identify New Aphid

STATE COLLEGE, N.M.—A new aphid has been found on lawns of new strains and varieties of bermuda grass in Las Cruces, according to J. J. Durkin, extension entomologist at New Mexico A&M. Adjacent clumps of common bermuda are also heavily infested. The college and U.S. Department of Agriculture entomologists have been unable to identify the minute wax-secreting insect. Specimens have been sent to European entomologists in hopes that they can provide some information on the aphid.



John L. French



C. H. Godfrey



R. Andrew Jenkins



Raymond T. Waller

V-C Appoints Four To Fill New Posts as Regional Sales Heads

RICHMOND, VA. — John L. French, C. H. Godfrey, R. Andrew Jenkins and Raymond T. Waller have been named regional sales managers of Virginia-Carolina Chemical Corp.'s fertilizer division, it has been announced by A. P. Gates, general sales manager.

Mr. Gates said that the new posts have been created in a reorganization of the company's fertilizer sales organization along regional lines.

Under the new set-up, V-C sales office managers, to be called district managers, will be under the direction of the four regional managers. These, in turn, will operate under Charles E. (Jack) Workman, field sales manager, and Mr. Gates.

Mr. French, who has served as a salesman, sales office manager and in the general sales department during his 30 years with V-C, moves to Albany, Ga., to become southeastern regional sales manager.

Mr. Jenkins, formerly manager of V-C's Baltimore office, will assume the duties of southwestern regional manager with headquarters in Memphis.

The western district will be managed by Mr. Godfrey, who has been in charge of V-C's Fort Wayne office since 1954. He will be based in Cincinnati.

Mr. Waller, of the general sales department staff, will take over as eastern regional manager. He will operate out of Richmond.

In addition to the regional appointments, Mr. Gates announced several changes at the district office level. All are effective July 1.

The Savannah and Atlanta V-C sales offices are being combined with the Albany, Ga., office. Loy A. Everett, of Albany, will be in charge of sales for the enlarged territory. He will be assisted by J. M. Shepherd, former Atlanta office manager.

Paul Renfro, Savannah manager, is being transferred to Greensboro, N.C., to succeed T. D. Bass, who is retiring after 39 years with the company.

J. Rupert Fulton, assistant manager at Columbia, S.C., will become district manager at Hopkinsville, Ky. He replaces Dave S. King who retires June 30.

E. Exum Griffin, assistant manager at Dubuque, moves to Estherville, Iowa, where he will replace C. Aubrey Clayton as manager. Mr. Clayton is returning to the Memphis sales office where he first joined V-C in 1952.

Joe S. Polk, formerly assistant manager at Norfolk, Va., becomes manager of the Baltimore, Md., office succeeding R. Andrew Jenkins.

Another double shift takes place as James N. Stone moves from the manager's spot at Orrville, Ohio, to Fort Wayne, Ind., to replace C. H. Godfrey. The Orrville managership will be filled by Wallace H. LaPrade, former assistant to manager at Richmond.

Phillip V. Stone Heads WARF Insecticide Laboratory

MADISON, WIS. — Ward Ross, managing director of the Wisconsin Alumni Research Foundation, has announced the appointment of Phillip V. Stone as director of the insecticide division of the WARF laboratories. Mr. Stone is an entomologist who received undergraduate and graduate training at the University of Wisconsin and has been associated with WARF for 10 years. He succeeds Dr. George S. Kido who is leaving on July 1 to accept a position as director of product development with the West Coast division of O. M. Scott & Sons Co.

EACH ISSUE A COMPLETE REPORT— DESIGNED TO BOOST FALL SALES!

Why These Special Emphasis Issues? . . .

Croplife's editors have long felt the need for placing extra emphasis on the marketing advantages and profit opportunities of fall fertilization and pasture and range maintenance. They sense the need for a campaign to increase fall application to help level-off consumer demand . . . to reduce the spring rush and subsequent shortage of materials. The immediate response to the initial issue on this subject published in July, 1956, proved the value of the issue.

The Need for Four Complete Issues . . .

Croplife's first Fall Fertilization coverage appeared in a Midwest Marketing Issue—which limited somewhat the scope of the contents. The success of the initial attempt pointed up the need for specialized coverage in each crop area—South, West, Midwest and Northeast. Four tailor-made issues will bring specialized information to each of these regions.

Editorial Content Paves the Way . . .

Editorial material is designed to be useful to all segments of the industry—manufacturers, distributors and retailers—in giving fall sales a big push this year. Much of the copy is planned for use in actual over-the-counter sales talks with farmers. Some may be adapted for bulletin board use. Other material can be utilized by dealers in local newspaper advertisements or direct mail campaigns. Plans call for a "question-and-answer" feature; state recommendations for fall fertilization and maintenance of pastures; articles by authorities on fertilization, weed and brush control, insect control and the economics involved. They all point toward the same goal: INCREASED FALL SALES!

Pinpoint Your Advertising Message . . .

This makes it possible—by picking appropriate issues—to key your message to your area of marketing interest—to your prospects. This close tie-in with editorial material will give your advertisements the greatest possible impact. It will deliver your sales messages to your prospects—all the way down the marketing line—at the right time . . . it will help

them map out plans for increased fall sales of your products. Here's an opportunity for you to present your specific fall sales story . . . to point to the things you are doing—the sales-aids you offer—to help distributors and dealers sell.

Reader-Response Assured . . .

After reading the 1956 version of this new special emphasis series, many firms and individuals urged Croplife to make this an annual special emphasis project. Requests for extra copies of the July 23, 1956, Croplife came in at an unprecedented rate. Within two weeks, the entire supply of reserve copies had been exhausted . . . many requests could not be filled.

Make Your Plans Now . . .

Make plans now to take advantage of this outstanding fall fertilization series of special emphasis issues. Here's an unusual opportunity to tie-in your sales message with complete news and feature coverage of a timely and important subject. Contact the Croplife office nearest you for complete details and any service Croplife's sales representatives can offer.

HERE ARE THE CLOSING DATES

JULY 15, South Marketing Issue, CLOSES JULY 1
JULY 22, Midwest Marketing Issue, CLOSES JULY 8
JULY 29, West Marketing Issue, CLOSES JULY 15
AUGUST 5, Northeast Marketing Issue, CLOSES JULY 29

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Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Midwestern states.

Pesticide Trade Needs Rebuttal to Faddists

The pesticide trade has been called all kinds of uncomplimentary names in the past years, with dark inferences that it is responsible for the increased incidence of heart disease, mental illness, and cancer. But now along comes a man who tops them all by warning that "we may even find the use of DDT more destructive of human life than the hydrogen bomb."

This statement, an explosive one in more ways than one, was not confined merely to the ears of a few backyard gardeners, but instead, is to be found in the Congressional Record of June 12.

This, it seems to us, is a sort of masterpiece of mixed metaphors and frightening connotations, based on the wobbly premise that DDT and other insecticides are a man-made addition to "the long list of etiological factors of degenerative diseases" which are undermining the health and stamina of the nation.

The article was published in the Congressional Record under the heading of "Insecticides Today and Tomorrow," an extension of remarks made by Lee Metcalf (D., Montana), in the House of Representatives June 4, 1957. In his presentation he quotes from a talk by one W. Coda Martin, M.D., who had addressed the Natural Food Associates at a recent convention. Dr. Martin told the group that from World War I of 1917 to the Korean war of 1950, there was an increase of rejections (of young men for military service) from 21.3% to 52%. This increase amounts to about 1% a year, he opined, and using this figure as a basis for projecting into the future, he said that in another 25 years, 75% of the youth of our country will be "physically or mentally unfit for active military service."

The doctor declared that in addition to increasing mental diseases and heart disease, cancer is "rapidly approaching the epidemic proportions of the Black Plague of the Middle Ages." He then posed the question, "What is the relationship of these harrowing mortality and morbidity figures and the subject of insecticides?"

In developing an answer to his own question, the doctor then went on and on for a few thousand words to castigate the industry that produces such products; to call on the Department of Health, Education, and Welfare to invoke its powers under emergency laws to "control the epidemic and to protect the health of the people."

"What is this new and man-made, etiological factor that has been added to our already weakened and deteriorated bodies?" he asked. Why, insecticides, of course! He viewed with alarm the fact that by 1975, the chemical industry expects an increase (from the 1954 level) of 284% in pesticide use. "By that time," he laments, "We will be knee high in chemicals on our farms."

Dr. Martin expressed great doubt that insecticides are necessary anyway. The insects become resistant to the toxicants, he said, so there's no use in attempting to control them. Insecticides kill the beneficial insects and even the soil bacteria, and, "in general, upset the balance of nature," he declared.

This we have heard before. We have also heard about the accumulation of pesticides in the soil, which Dr. Martin also touched upon, but the main point of his paper, he said, "is to show what influence the extensive use of these highly-toxic chemical insecticides has on the future health of the human being. In the final analysis, we are the recipients of these sprays, either by direct spraying, by inhalation, or by ingestion from contaminated food."

But how about the Miller amendment to the Food and Drug law? Does it not protect the public? Not so, Dr. Martin insists. "It is an ac-

cepted fact," he says, that "all foods purchased from the open market today carry a high residue of many of these insecticides, as they are sprayed approximately once a week during the growing season with one or more of these chemicals. In fact, the mass poisoning of the human race has been legalized by a congressional law. They have set up what is known as tolerance levels for each of the many chemical insecticide sprays. For instance, 7 parts per million of DDT is allowed on every article of food consumed.

"The physical and mental strength of our nation is being lowered daily by the effects of these insecticides on our body metabolism, and there is reason to believe that the effects will be increased with their future use—unless something is done to control the use of these insecticides on our foods before the deterioration of the nation's health reaches a point of no return, it may well be catastrophic. That time could be in the foreseeable future if the mass poisoning of the human population continues as outlined for the next 20 years."

Military strategists say that one should know what the enemy is thinking and how he is expected to proceed. Here is a case where an obvious foe of the pesticide industry tells his entire story. His arguments will leave trade people unimpressed, but when one considers the effect such a tirade might have on congressmen who want to be known in their districts as humanitarians, it takes on a more serious aspect.

A good offensive program on the part of the industry is called for at this time. Certainly the weight of opinions held by scientists of the stature of Dr. E. F. Knipling, USDA agricultural research service entomologist, and George Larrick, administrator of the Food and Drug Administration, could be used as weapons to counteract the insidious and dangerous accusations directed against the pesticide industry.

The trade should keep in mind what these men said recently (Croplife May 27, 1957) in connection with objections made by Long Island residents to the gypsy moth control program there. Dr. Knipling commented that so far as harmfulness of pesticidal chemical residue to the human being is concerned, the Miller amendment was an assurance to the public of a guarantee against danger from use of such chemicals. He said he felt certain the administration of this act was a cautious approach. Residual tolerances are being granted only on the basis of adequate pre-use testing by the producers as to harmlessness to the consumers from any residues which might remain on the farm product.

Mr. Larrick, commenting along the same line, said the "whole purpose of the Miller Amendment was to make available modern scientific progress to the farm community and at the same time insure to the consumer safety against harm from residues which might remain." He said further that the administration of the Miller Amendment was being conducted on a decidedly cautious policy basis and that the residual tolerances which have been granted for new chemicals are well below the technical use levels which scientific study has indicated as safe, so that the consumer has double insurance of harmlessness.

Pesticide trade people at all levels, formulators, mixers, salesmen, dealers, and custom applicators should be well versed on the answers to accusations that may come up on a local level. To say merely that "it isn't so" is a weak rebuttal when worried citizens quote scare statements of the type uttered by W. Coda Martin, M.D.

The calm and objective appraisal of Knipling and Larrick are based on an unprejudiced viewpoint and should be utilized to counteract the attacks of pesticide haters.



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

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MEETING MEMOS

June 26—North Central States Association of Dairy, Food, Drug, Feed, Fertilizer and Pesticide Officials, Annual Meeting, Sheraton Martin Hotel, Sioux City, Iowa.

June 26-28—Eighth Annual Fertilizer Conference of the Pacific Northwest, Benson Hotel, Portland, Ore. B. R. Bertramson, Washington State College, Pullman, Wash., chairman.

June 26-28—Pacific Branch, Entomological Society of America, 41st Annual Meeting, Multnomah Hotel, Portland, Ore., H. H. Kelfer, 1112 Swanston Drive, Sacramento 14, Cal., Secretary-Treasurer.

June 29—Del-Mar-Va Peninsula Fertilizer Assn., 36th Annual Convention, George Washington Hotel, Ocean City, Md.

July 1-12—Summer Meetings, Georgia Plant Food Educational Society, July 1, E. O. Cabiness Farm, Oglethorpe County; July 9, A. C. Ewing Farm, Newton County; July 11, H. D. Burton Farm, Thomas County; July 12, Sam Neville Farm, Bulloch County; J. Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta 3, Ga., Secretary-Treasurer.

July 4-5—Alabama Seedsmen's Assn., Battle House, Mobile, Ala.

July 10-14—Plant Food Producers of Eastern Canada, Manoir Richelieu, Murray Bay, Quebec.

July 11-12—Great Plains Anhydrous Ammonia Meeting, Kansas State College, Manhattan, Kansas.

July 17-19—Southwestern Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 30-31—Fertilizer Meetings and Experiment Station Tours, Auburn, Ala. and Thorsby, Ala., Sponsored by the Alabama Agricultural Experiment Station and Alabama Soil Fertility Society.

Aug. 13-14—Ohio Pesticide Institute, Summer Meeting, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Secretary.

Aug. 14—Connecticut Agricultural Experiment Station Field Day, Mt. Carmel, Conn. Dr. James G. Horsfall, New Haven, director.

Aug. 28-31—Soil Conservation Society of America, Annual Convention, Asilomar, Cal.

Sept. 4-6—National Agricultural Chemicals Assn., Annual Meeting Essex & Sussex, Spring Lake, N. J., L. S. Hitchner, 1145 19th St. N.W., Washington 6, D. C., Executive Secretary.

Sept. 5-6—Great Lakes States Anhydrous Ammonia Meeting, Michigan State University, East Lansing, Mich.

Sept. 8-15—International Congress of Crop Protection, Hamburg, Germany.

Sept. 24-25—New England Fertilizer Conference, Bald Peak Colony Club, Melvin Village, N.H.

Oct. 2-4—Eleventh annual Beltwide Cotton Mechanization Conference, Shreveport, La.

Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.

Oct. 7-8—Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.

Oct. 17—Conference on Chemical

Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 18—Association of American Fertilizer Control Officials, (States Relations Committee, 8 p.m. Oct. 17), Shoreham Hotel, Washington, D.C., B. D. Cloaninger, Box 392, Clemson, S.C., Secretary-Treasurer.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Oct. 31-Nov. 1—Second Annual Southern Fertilizer Conference and Second Annual Southern Soil Fertility Conference, Dinkler Plaza Hotel, Atlanta, Ga.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco. Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Collier, 2217 Tribune Tower, Chicago 11, Ill.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.

Dec. 10-12—North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheld, agronomy department, South Dakota State College, Brookings, Program Chairman.

Dec. 11-13—Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.



ON BIG BOARD—James M. Gerstley, right, president of U.S. Borax & Chemical Corp., receives congratulations from Keith Funston, New York Stock Exchange president, after purchasing 100 shares of U.S. Borax & Chemical common stock—marking the opening of trading in the company's stock on the Big Board. Mr. Gerstley and Mr. Funston are holding a scale model of a 20 Mule Team, symbolizing the company's line of household and industrial cleansing products. A silhouette of a jet plane in foreground symbolizing the use of its boron products in high energy jet fuels of the future. U.S. Borax & Chemical Corp. was formed in July, 1956 by a merger of Pacific Coast Borax Co.

HEALTH, WELFARE PLANS

SAN FRANCISCO—An estimated 85% of the workers employed under union contracts in the chemical manufacturing industries in California are protected by health and welfare plans taken out by the employing organizations. The Division of Labor Statistics and Research found that of more than 8,000 unionized workers, some 6,880 were covered by health and welfare provisions. Employer contributions in these companies ranged from \$3.45 to \$11.20 a month for each full-time employee.

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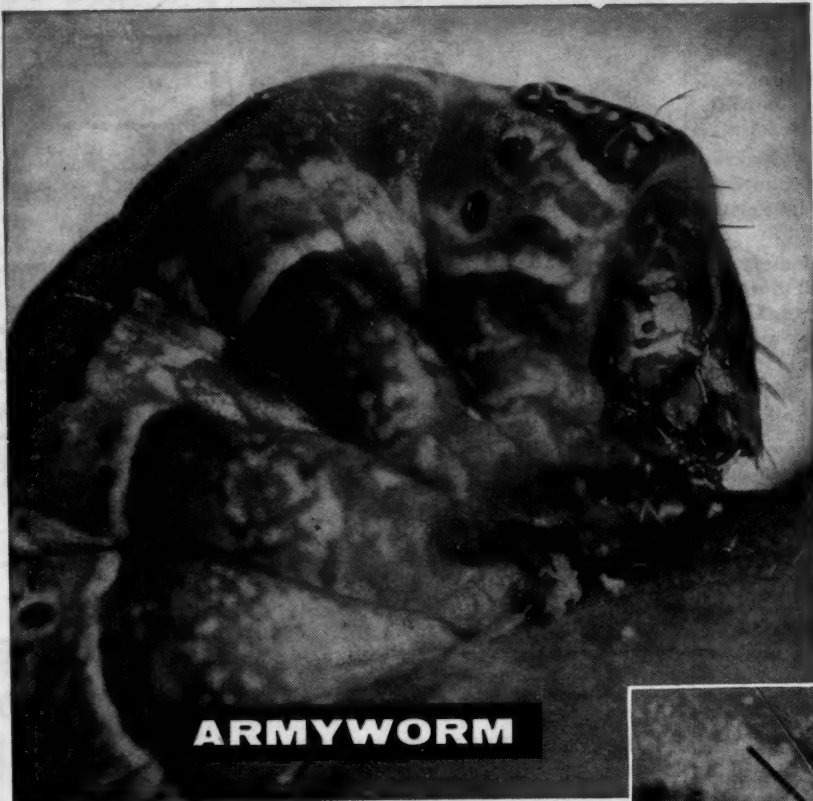
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